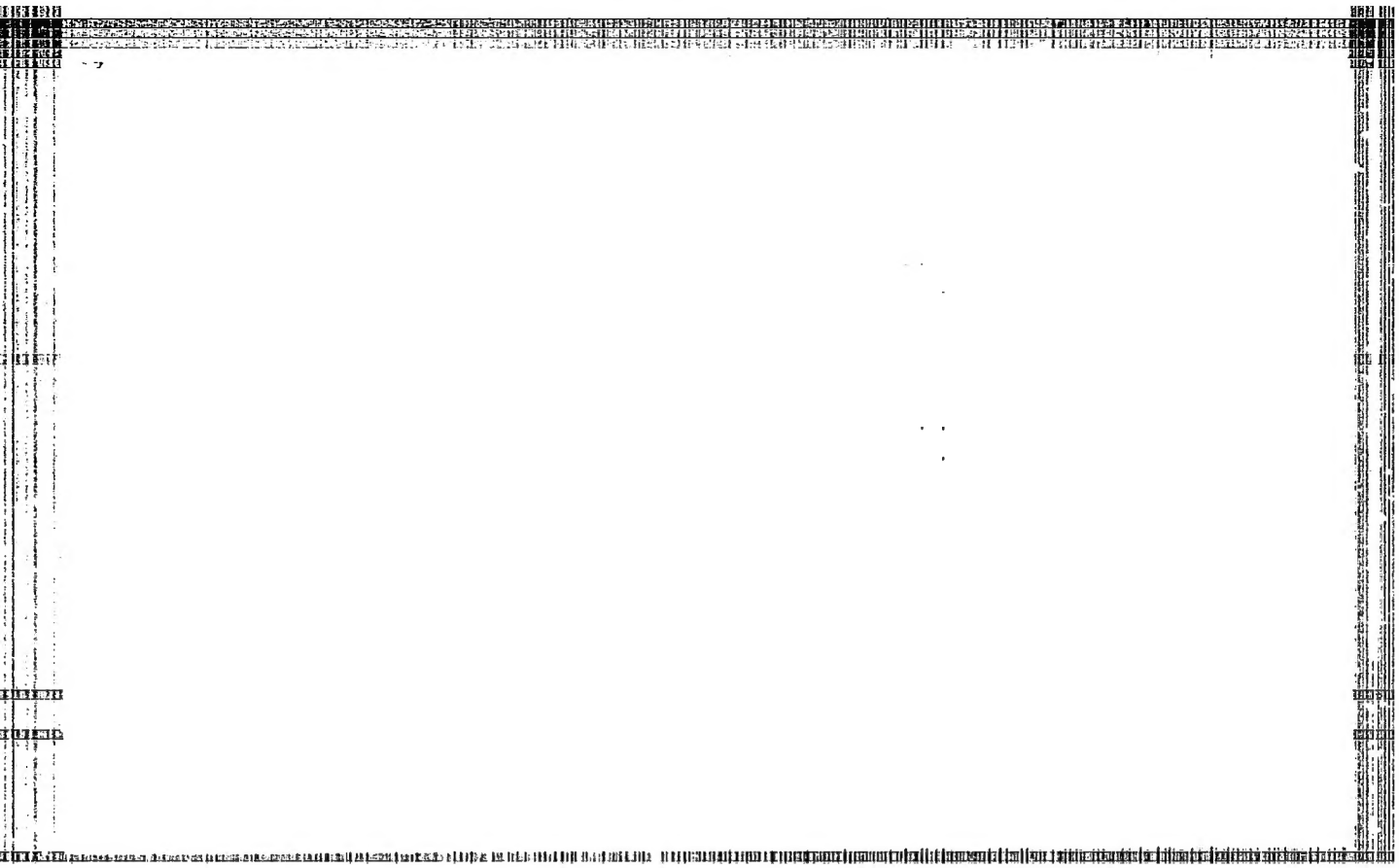
ZIEBORAK, K. : BRZOSTOWSKI, W.

Azeotropic and polyazeotropic systems. XXIV. On the positive-negative azeotrope n-octane-acetic acid-pyridine.

P. 213, (Roczniki Chemii) Vol. 31, No. 1, 1957, Warszawa, Poland.

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC. - VOL. 7, NO. 1, JAN. 1958



ZIEBORAK, K.

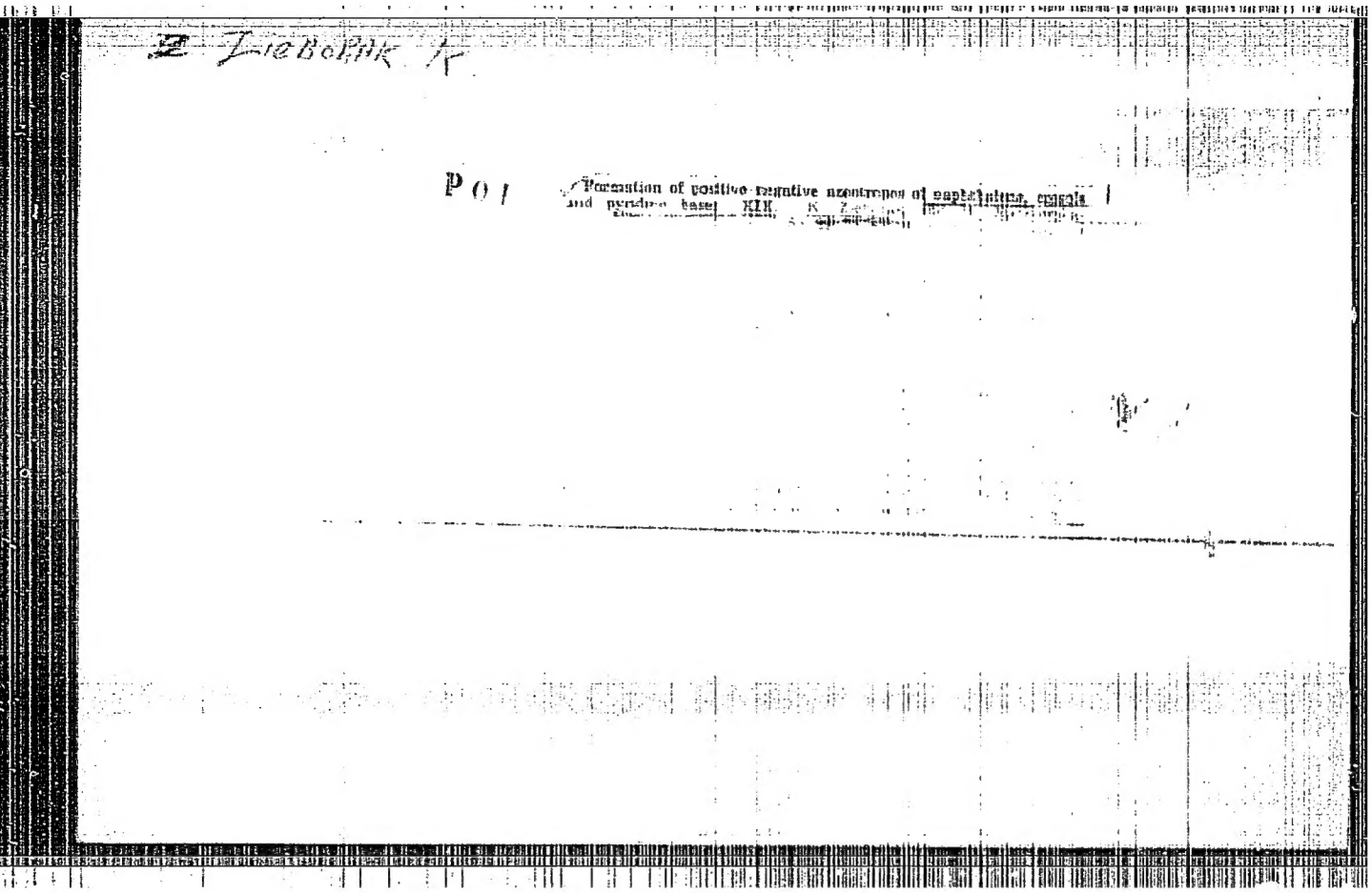
Kaczorowna-Badyoczek, H.; Maczynska, Z. Azeotropic and polyazeotropic systems. XX. Positive-negative azeotropes formed by 2, 6-lutidine, acetic acid, and paraffinic hydrocarbons. p. 783.

ROCZNIKI CHEMI, Warszawa, Vol. 29, no. 2/3, 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955, Uncl.

ZIEBORAK, K

USSR [illegible] (Przem. Chem. (Chem. [illegible]), vol. 9, [illegible], 1954) [illegible] Lieborak, K. Zh. Khim. (Ref. Zhur. Khim.), 1954, [illegible]. Naphthalene for hydrogenation [illegible] should contain not more than [illegible] sulphur [illegible] tetralin and decalin [illegible] of sulphur [illegible] commercial naphthalene [illegible] after [illegible] removed by [illegible] with ammonia [illegible] crystallising [illegible] fraction, equal to [illegible] of the distillate, [illegible] The first [illegible] .063% chlorine; the fourth, 64.2 to 83.4% of the distillate, contained .025% sulphur and [illegible].107% chlorine. However, complete removal of the chlorine products by distillation is rather difficult.



ZIEBORAK, K

POLAND

279. POSITIVE-NEGATIVE AZEOTROPES FORMED BY [illegible], [illegible] AND [illegible]. Zieborak, K. and [illegible] (Bull. Acad. Polon. Sci., [illegible] vol. 2, [illegible]). In recent [illegible] [illegible] the state [illegible] ... characterized by the ... of fractions ... temperature range ... mixture. ... taking place in ... ternary ... total ...

ZIEBORAK, K.

POL..

✓ Sulfur compounds in neutral oils from coal tar. [illegible]
Zieborak and T. Bogucki. Przemysl Chem. 5, [illegible]
(1953)(English summary).—Neutral oil obtained from
$C_{10}H_8$ oil by removing tar acids and bases and contg. 0.83%
S was rectified in a lab. column with Raschig rings, frac-
tions were taken, and the amt. of S in each fraction was
calcd.; the higher-boiling fraction (18%) was washed with
C_6H_6 and distd. in an Engler flask. Two maxima of S con-
tent were formed in the fraction b. 182-6° (0.29%) and the
fraction b. 222° corresponding to $C_9H_?S$ (3.65%). In
various fractions of $C_{10}H_7Me$ oil the S content remained const.
(0.60%). Gene A. Wormy

ZIEBORAK, K.; ZIEBORAK, M.

On the ternary positive-negative azeotrope: acetic acid, pyridine and n-heptane. XVII. In English. p. 287, (FRAGMENTA FLORISTICA ET GEOBOTANICA, Vol. 2, No. 6, 1954, Krakow, Poland)

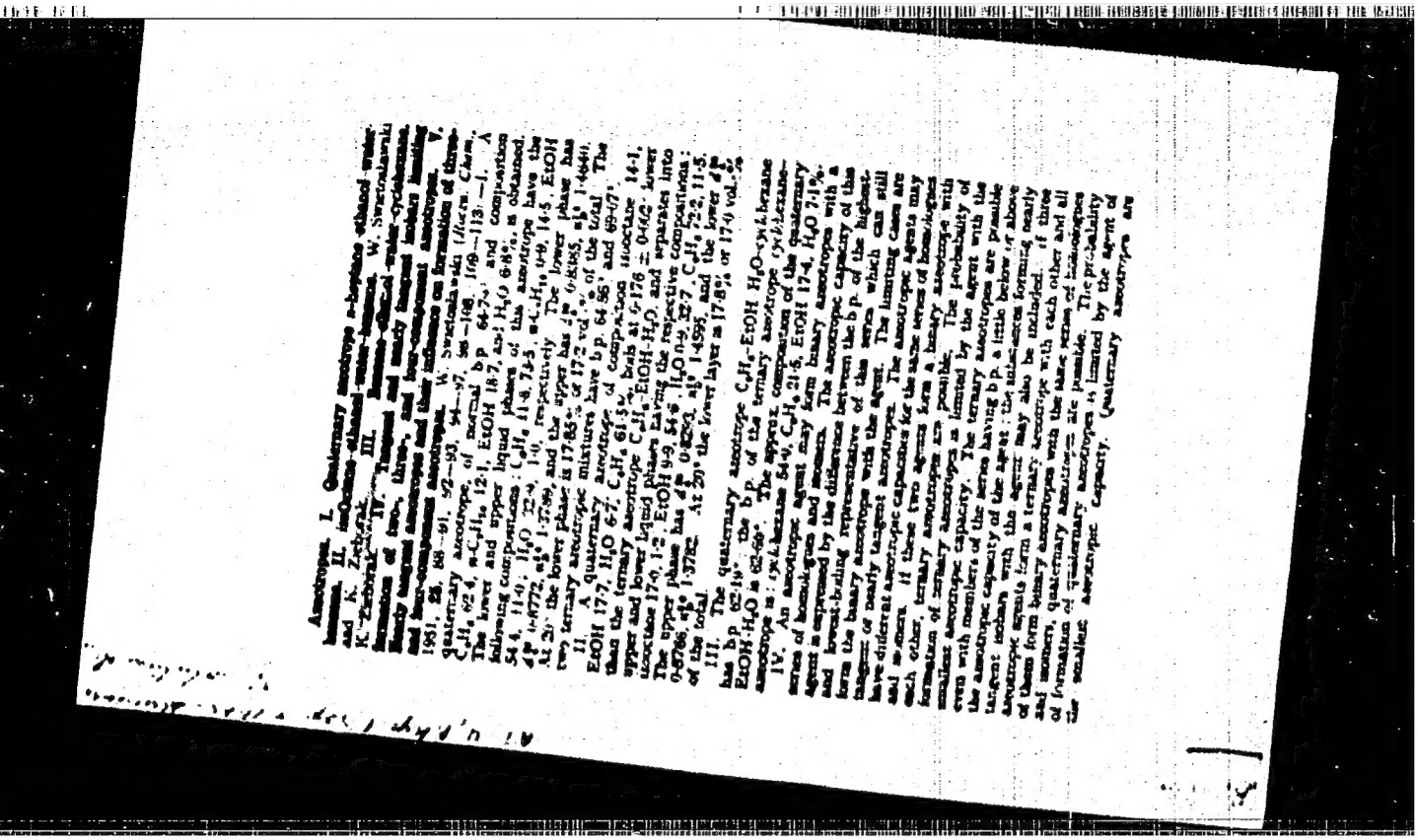
SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 5 May 1955, Uncl.

ZIEBORAK, K.

3

Positive-negative azeotropes formed by naphthalene, phenols, and pyridine bases. XIX. K. Zieborak and [illegible] (*Bull. Acad. polon. Sci.*, [illegible], Cl. III, 3, 341—344).—An account is given of the use of the ebulliometric method for determining the shape of the boiling-temp. isobars composed, on the one hand, of naphthalene and a fraction F of m- and p-cresols, characterised by the constant boiling temp. $t_{?} = 202°$, and, on the other, of fractions of pyridine bases characterised by the following temperature ranges: P_1 142—145°; P_2 157—157·5°; P_3 163—164°. The method is also used to examine the tridimensional surface corresponding to the boiling temperature isobars and the results are discussed. From the results it is concluded that the formation of a polyazeotropic mixture, consisting of a number of ternary saddle azeotropes, takes place in the course of distillation of the carbolic and middle oils of coal-tar.

A. Lapworth.



possible even with representatives of the series forming nearly tangent isobars with the agent. Separation by distillation is practically impossible when the mixture contains two series of homologues forming binary azeotropes with each other and containing also one of more azeotropic agents which may form both ternary of quaternary azeotropes with the series.

V. The phenomena observed during the distillation of a mixture of C_7H_{16} isomeric heptanes, and lower boiling octanes illustrate the continuity in the formation of nearly tangent azeotropes and zeotropes. The distillation curve of a mixture of EtOH, H_2O, C_7H_{16} and gasoline (isomers of heptane and some lower-boiling octanes) shows the continuity of the formation of quaternary azeotropes and mixtures of nearly tangent zeotropes. The zeotropes are composed of ternary azeotropes containing EtOH, H_2O, and either C_7H_{16} or lower boiling octanes. Zeotropic mixtures of quaternary or ternary nearly tangent azeotropes are practically impossible to separate by fractional distillation. A rule is formulated: when a substance forms nearly tangent azeotropes with one part of a mixture of homologues and their isomers, and zeotropes with the other part, addition of a third component or even of two components having large azeotropic capacity will lead to the formation of a certain number of ternary or quaternary azeotropes, the b.p. of which will differ widely.

S. M. Rybicka.

P. I. A.

Chemistry + Chemical Technology

707 541.12.017.3 : 541.123.61

Świętosławski W., Zięborak K. Quaternary Azeotrope Composed of Benzene-Ethanol-Water and Isooctane.

„O azeotropie czteroskładnikowym utworzonym z izooktanu, etanolu, wody i benzenu", Przemysł Chemiczny. No 7—8, 1950, pp. 420—421, 2 tabs.

The existence of the quaternary heteroazeotrope composed of benzene — ethanol — water and isooctane (2,2,4 — trimethyl-pentane) has been demonstrated. The boiling point of the heteroazeotrope at one atmosphere 64.85°C, and the percentages weight composition are as follows: benzene 61,5%, ethanol 17,7%, water 6,7% and isooctane 14,1%. The densities and the refractive indexes of both the liquids have also been determined.

P.T.A.

Chemistry - Chemical Technology

541.12 017.3 : 541.123.61

708

Awiętosławski W., Zięburak K. Quaternary Azeotrope Composed of Ethanol-Benzene-Water and Normal Heptane.

„O azeotropie czteroskładnikowym utworzonym z benzenu, etanolu, wody i n-heptanu". Przemysł Chemiczny, No. 7—8, 1950, pp 420, 2 tabs.

Quaternary azeotrope composed of ethanol-benzene-water and normal heptane has been obtained. It has been characterized by boiling temperature 64.78°C and by the following percentage weight composition: benzene 62.4, ethanol 18.7, water 6.8 and normal heptane 12.1. Composition, densities and the refractive indexes of both the lower and the upper phases are given. The percentage volume of the lower phase at 20°C is 17.2, which corresponds to 17.85 percent of the percentage weight.

ZIEBORAK, M.; ZIEBORAK, K.

On the ternary positive-negative azeotrope: acetic acid, pyridine and n-heptane. XVII. In English. p. 287, (FRAGMENTA FLORISTICA ET GEOBOTANICA, Vol. 2, No. 6, 1954, Krakow, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 5 May 1955, Uncl.

P.7,A.

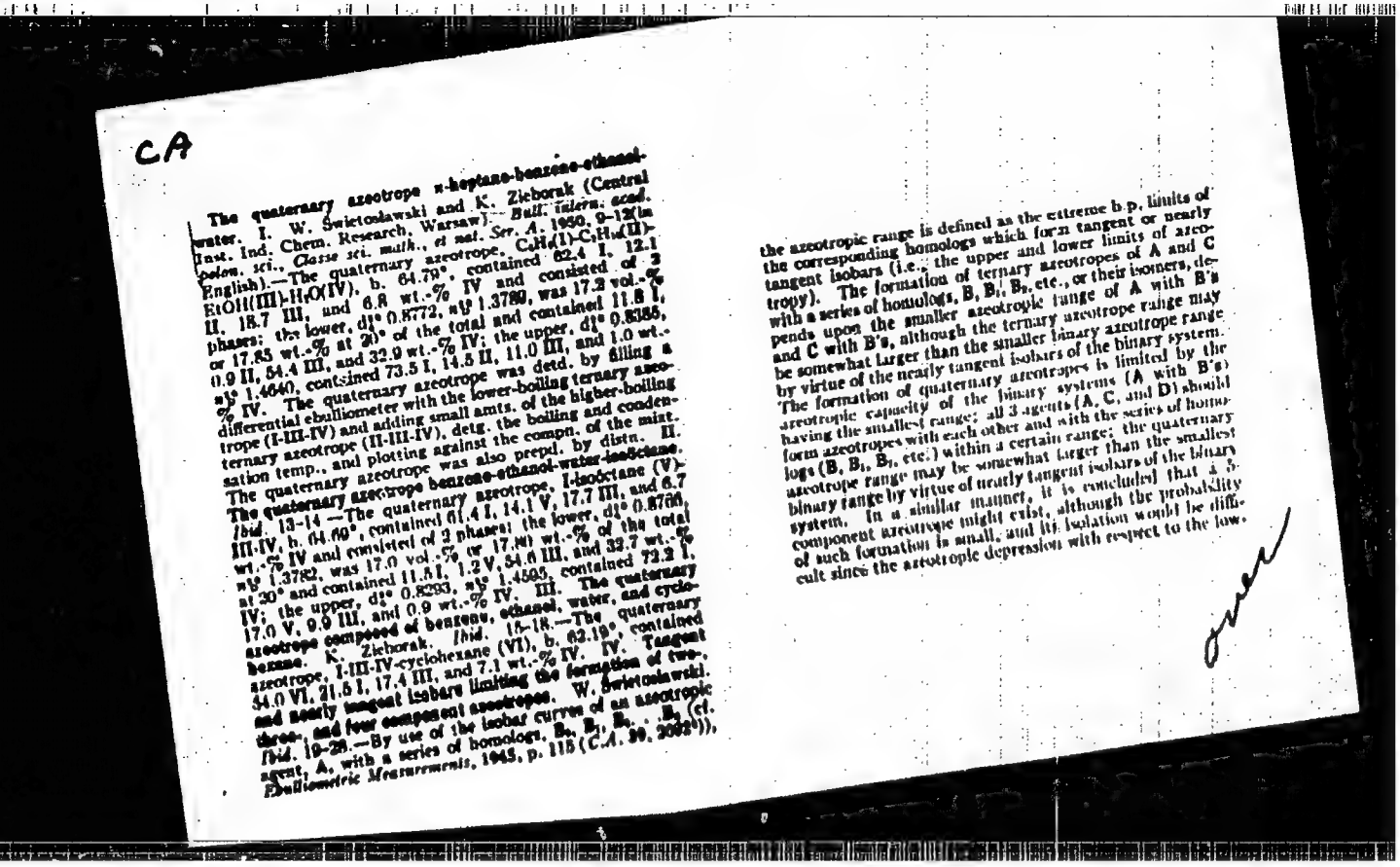
Chemistry + Chemical Technology

709 541.12.017.3 : 541.123.61

Zieborak, Z. Quaternary Azeotrope Composed of Benzene — Ethanol — Water — Cyclohexane.

„O azeotropie czteroskładnikowym utworzonym z benzenu, etanolu, wody i cykloheksanu". Przemysł Chemiczny, No. 7 - 8, 1950 pp. 421.

The quaternary azeotrope: benzene — ethanol — water — cyclohexane of the following percentage weight composition: benzene 21.5, ethanol 17.4, water 7.1 and cyclohexane 54.0 and boiling temperature 62.19°C has been obtained. An azeotropic depression equal to 0.41°C was found with respect to boiling temperature of the lower boiling ternary azeotrope composed of ethanol — water — cyclohexane.



CA

The quaternary azeotrope n-heptane-benzene-ethanol-water. I. W. Świętosławski and K. Zieborak (Central Inst. Ind. Chem. Research, Warsaw).—*Bull. intern. acad. polon. sci., Classe sci. math., et nat. Ser. A.* 1950, 9–12(in English).—The quaternary azeotrope, C_7H_{16}(I)-C_2H_5OH(III)-H_2O(IV), b. 64.79°, contained 62.4 I, 12.1 II, 18.7 III, and 6.8 wt.-% IV and consisted of 3 phases; the lower, d_4^{20} 0.8772, n_D^{20} 1.3780, was 17.2 vol.-% or 17.85 wt.-% at 20° of the total and contained 11.8 I, 0.9 II, 54.4 III, and 32.9 wt.-% IV; the upper, d_4^{20} 0.8186, n_D^{20} 1.4040, contained 73.5 I, 14.5 II, 11.0 III, and 1.0 wt.-% IV. The quaternary azeotrope was detd. by filling a differential ebulliometer with the lower-boiling ternary azeotrope (I-III-IV) and adding small amts. of the higher-boiling ternary azeotrope (II-III-IV), detg. the boiling and condensation temp., and plotting against the compn. of the mixt. The quaternary azeotrope was also prepd. by distn. II. The quaternary azeotrope benzene-ethanol-water-isooctane. *Ibid.* 13–14.—The quaternary azeotrope, I-isooctane (V)-III-IV, b. 64.60°, contained 61.4 I, 14.1 V, 17.7 III, and 6.7 wt.-% IV and consisted of 2 phases; the lower, d_4^{20} 0.8760, n_D^{20} 1.3782, was 17.0 vol.-% (or 17.80 wt.-% of the total at 20° and contained 11.8 I, 1.2 V, 54.6 III, and 32.7 wt.-% IV; the upper, d_4^{20} 0.8293, n_D^{20} 1.4595, contained 72.2 I, 17.0 V, 9.9 III, and 0.9 wt.-% IV. III. The quaternary azeotrope composed of benzene, ethanol, water, and cyclohexane. K. Zieborak. *Ibid.* 15–18.—The quaternary azeotrope, I-III-IV-cyclohexane (VI), b. 62.19°, contained 54.0 VI, 21.5 I, 17.4 III, and 7.1 wt.-% IV. IV. Tangent and nearly tangent isobars limiting the formation of two-, three-, and four component azeotropes. W. Świętosławski. *Ibid.* 19–28.—By use of the isobar curves of an azeotropic agent, A, with a series of homologs, B_n, B_1, B_2, . . . B_n (cf. *Ebulliometric Measurements*, 1945, p. 115 (*C.A.* 39, 2082)), the azeotropic range is defined as the extreme b.p. limits of the corresponding homologs which form tangent or nearly tangent isobars (i.e., the upper and lower limits of azeotropy). The formation of ternary azeotropes of A and C with a series of homologs, B, B_1, B_2, etc., or their isomers, depends upon the smaller azeotropic range of A with B's and C with B's, although the ternary azeotrope range may be somewhat larger than the smaller binary azeotrope range by virtue of the nearly tangent isobars of the binary system. The formation of quaternary azeotropes is limited by the azeotropic capacity of the binary systems (A with B's) having the smallest range; all 3 agents (A, C, and D) should form azeotropes with each other and with the series of homologs (B, B_1, B_2, etc.) within a certain range; the quaternary azeotrope range may be somewhat larger than the smallest binary range by virtue of nearly tangent isobars of the binary system. In a similar manner, it is concluded that a 5-component azeotrope might exist, although the probability of such formation is small, and its isolation would be difficult since the azeotropic depression with respect to the low-

over

est-boiling quaternary azeotrope would be small. V. **Nearly tangent zeotropes and their influence on the formation of ternary and quaternary azeotropes and zeotropes.** W. Świętosławski. *Ibid.* 29-33.—In the distn. of I with a small amt. of hydrocarbons, b. 81 100°, the temp. vs. compn. curve has one section corresponding to the formation of nearly tangent binary azeotropes, a transition point from nearly tangent azeotropes to nearly tangent zeotropes, and a section representing the distn. of the zeotropes. If to the ternary azeotrope, I-III-IV, b. 64.85°, is added gasoline (contg. mostly isomeric heptanes and octanes), b. 93-100°, distn. will yield the quaternary azeotrope and the ternary azeotrope, and a somewhat similar distn. curve is obtained. Thus, there is a similarity between the distn. of binary tangent and nearly tangent azeotropes and zeotropes and the distn. of a complicated polycomponent system. The following rule was deduced: If substance B forms with 1 part of a homologous series nearly tangent azeotropes and with another nearly tangent zeotropes, the addn. of a 3rd or 4th azeotropic component leads to the formation of ternary or quaternary azeotropes, resp., whose boiling-temps. differ slightly from each other. These mixts. of ternary or quaternary azeotropes or zeotropes cannot be sepd. by practical distn. Also in *Roczniki Chem.* 25, 88-113(1951).

Herman Skolnik

CA

Fermentation Industries
16

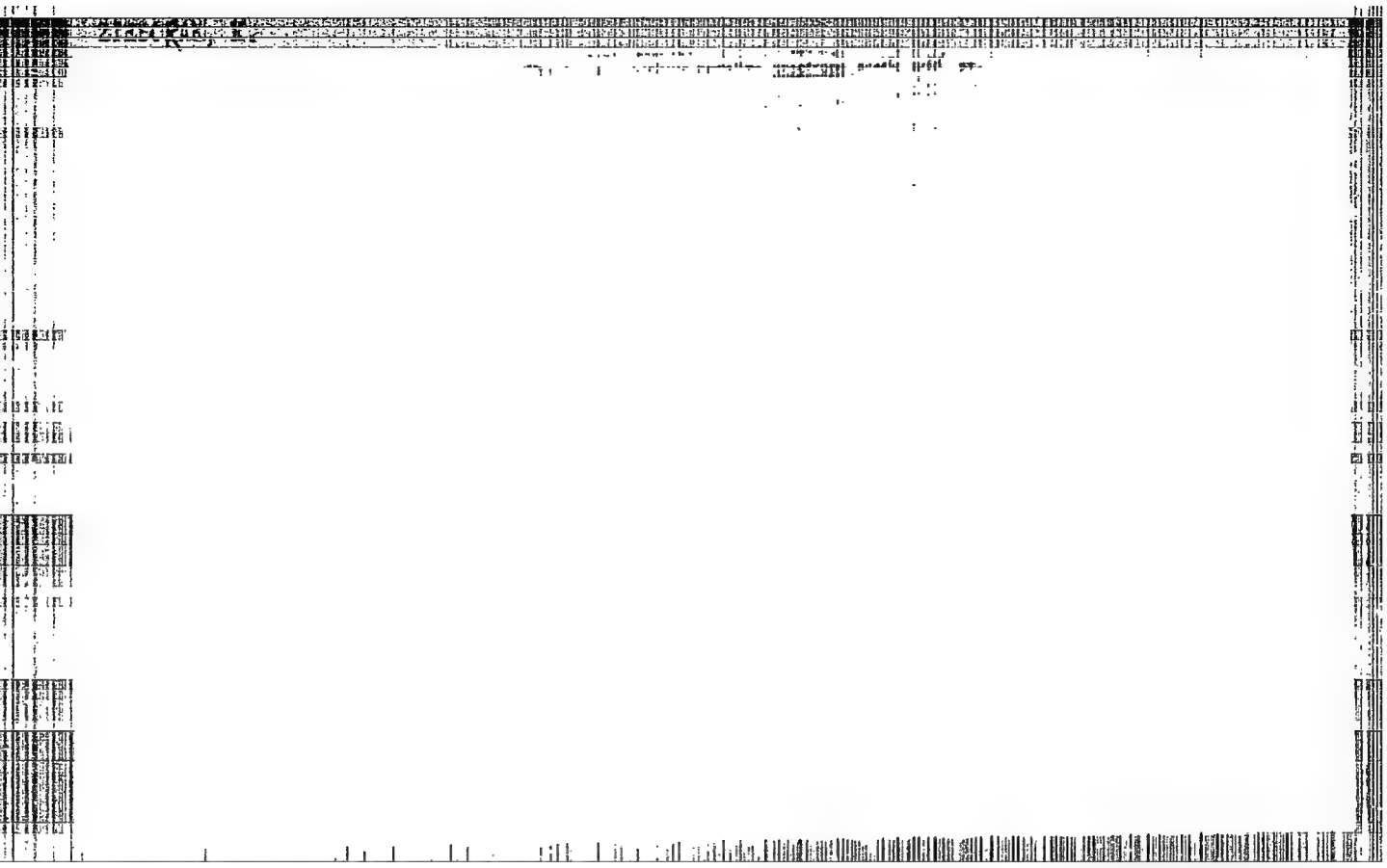
Preparation of a benzene-gasoline mixture for dehydrating ethyl alcohol. W. Świętosławski, K. Zbiszyak, and T. Gruberski (Inst. Ind. Chem., Warsaw, Poland). *Przemysł Chem.* 30, 683–6(1951).—The dehydrating mixt. is prepd. by passing a mixt. of C_6H_6, EtOH, water, and a fraction of gasoline b. 80–120° through a continuous distg. column. When the proportions are correctly chosen the resulting fraction consists of an upper phase contg. the azeotropic mixt. used in dehydrating EtOH and a lower phase contg. hydrocarbons that do not form quaternary azeotropes with C_6H_6, EtOH, and water.

Frank Gonet

Zieborak, K.

POL.

Purification of naphthalene from sulfur compounds. K. Zieborak (Univ. Warsaw, Poland). *Przemysl Chem.* [illegible] (English summary). — Naphthalene (I) purified by azeotropic distn. with cresols as azeotropic agents and by partial sulfonation contains 0.04% S in form of thianaphthene (II). The azeotropic distn. was performed in modified standard column contg. Raschig rings. The sulfonation of melted I with 93.5% H_2SO_4 and aq. 15% NaOH and subsequent distn. removes phenols, bases, and unsatd. compds. but not II. The desulfurized I cannot be used for catalytic hydrogenation on a Ni catalyst. The partial chlorination of I, free from acids and bases, and on subsequent rectification gave desulfurized I contg. less than 0.003% S. By using this method the loss of I is minimal but the removal of 0.05-0.10% Cl present in the distillate is difficult. Irene A. Wong



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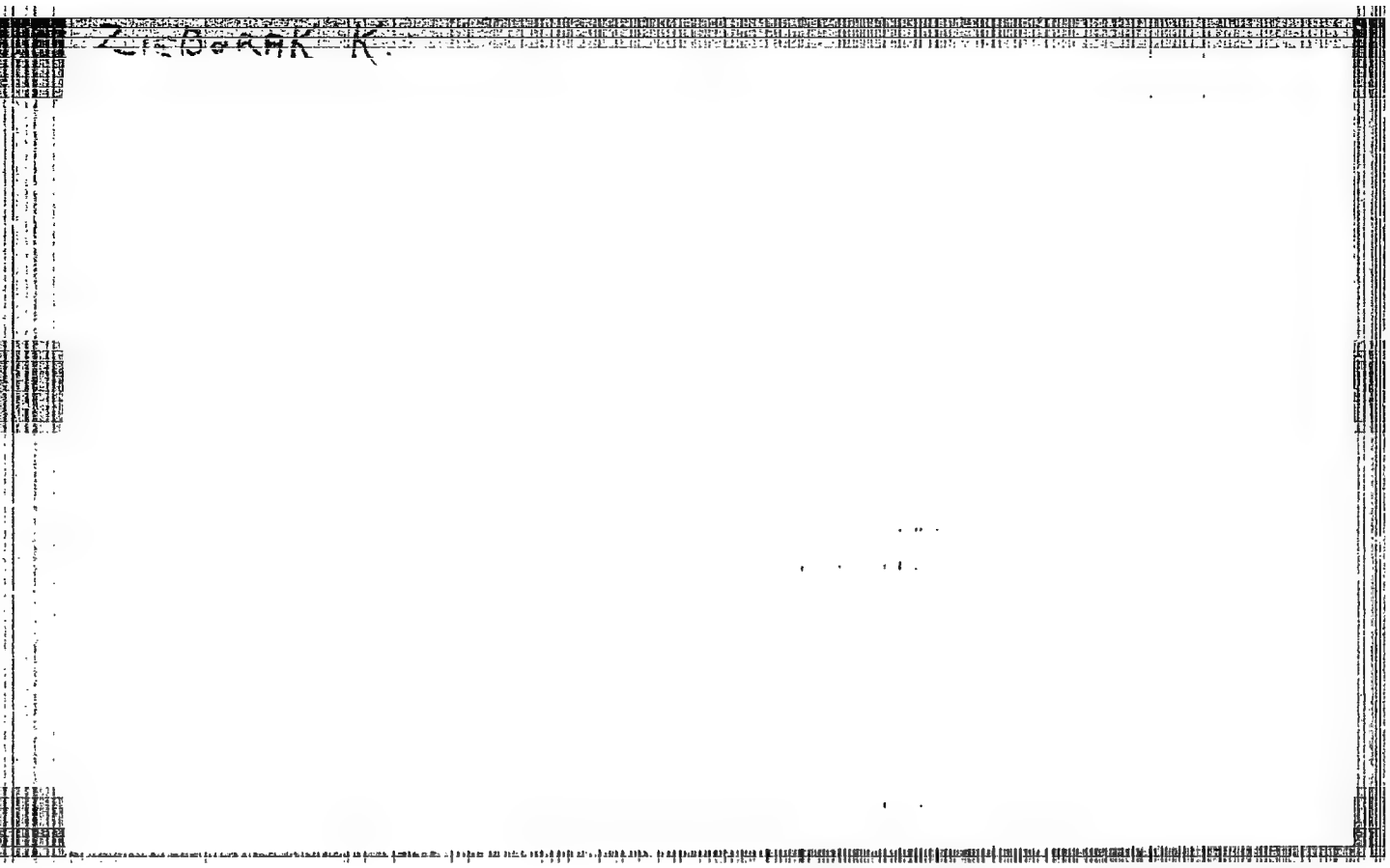

Zieborak, K.

4

Zieborak K., Zieborakowa M. Concerning the Positive-Negative Azeotrope Formed by n-Heptane, Acetic Acid and Pyridine. XVII

CH

„O azeotropie dodatnio-ujemnym n-heptan — kwas octowy — pirydyna": XVII Roczniki Chemii (PAN). No. 1, 1955, pp. 61-65, 2 figs., 1 tab

The system n-heptane (I) — acetic acid (II) — pyridine (III) was investigated using the equilibrometric method. The formation of the ternary positive-negative almost tangent azeotrope is declared; azeotropic composition in weight percentages is I — 91.5, II — 2.0, III — 6.5 and the boiling point 96.2 C. The boiling temperature of the binary negative azeotrope acetic acid-pyridine is 138.1 C and the concentration of pyridine in the azeotrope is [illegible]

Zieborak K.

Zieborak K., Markowska-Majewska K. Concerning the Positive-Negative Azeotrope Formed by Naphthalene, Cresols and Pyridine Bases. XIX.

„O azeotropach dodatnio-ujemnych utworzonych przez naftalen z krezolami i zasadami pirydynowymi" XIX. Roczniki Chemii (PAN) No. 1, 1935 pp. 73-84, 6 figs., 2 tabs.

The authors have found that naphthalene a mixture of m- and p-cresols and pyridine bases form ternary positive-negative azeotropes (saddle azeotropes). The following three systems were investigated using the ebulliometric method in which naphthalene and a mixture of m- and p-cresols form three series of azeotropes with the components of the three fractions of pyridine bases 142-145° C, 157-157.5 °C and 163-164 °C each mixed separately with the component mentioned above.

C,H

ZIEBORAK, K.

POLAND/Physical Chemistry. Thermodynamics. Thermochemistry. Equilibrium. Physicochemical Analysis. Phase Transitions. B-8

Abs Jour: Ref Zhur-Khim., No 13, 1958, 42506.

Author : Zieborak K.
Inst : Polish Academy of Sciences.
Title : Azeotropic and Polyazeotropic Systems. XXI. A Series of Saddle-Azeotropes Formed by Acetic Acid, Pyridine and Paraffinic Hydrocarbons.

Orig Pub: Bull. Acad. polon. sci., 1955, Cl. 3, 3, No 10, 531-537.

Abstract: See RZhKhim, 1957, 40568.

Card : 1/1

14

L 35290-66 IJP(c) JW
ACC NR: AP6026830 SOURCE CODE: GE/0065/66/231/03-/0248/0258

AUTHOR: Zieborak, Kazimierz (Professor; Doctor) 42 B

ORG: Institute of General Chemistry, Warsaw, Poland (Instytut chemii ogolnej)

TITLE: Boiling temperatures and vapor pressures of H sub 2 O - D sub 2 O mixtures of azeotropes of these [This paper was presented at the 1st Walther Nerst Memorial Symposium, held in Berlin on 3 October 1964.]

SOURCE: Zeitschrift fur physikalische Chemie, v. 231, no. 3-4, 1966, 248-258

TOPIC TAGS: boiling, vapor pressure, azeotropic mixture, deuterium oxide, chemistry technique, pressure measurement, temperature measurement

ABSTRACT: The boiling temperatures and vapor pressures of water and deuterium oxide mixtures were determined in the 74° - 222°C temperature range using the ebulliometric technique described by SWIETOSLAWSKI, W., ("Ebulliometric Measurements', Reinh. Publ. Corp., New York, 1945). Small negative deviations from the Raoult law were observed. An azeotrope, showing very little boiling-point increase, is evident between 220° and 222°C. A technique for conducting measurements at elevated pressure was briefly described. The work was carried out at Professor, Doctor Werner Kuhn's Institute in Basel. The work was financed by the Commission for Atomic Science (KAW). The author thanks Doctor Max Thurkauf of the Physics-Chemistry Institute at the University of Basel for many worthwhile suggestions. He also thanks Mr. Durr, head of the Institute Workshop for his help. Orig. art. has: 8 figures and 5 tables. [JPRS: 36,464]

SUB CODE: 07 / SUBM DATE: 03Dec64 / ORIG REF: 001 / OTH REF: 008

Card 1/1

ZIEBORAK, Kazimierz

Survey of works of the Physicochemical Laboratory of the Institute of General Chemistry on applied physicochemistry. Przem chem 42 no.12:704-706 D'63.

GRABOWSKI, Zbigniew R.; ZIEBORAK, Kazimierz

On the tasks of the Institute of Physical Chemistry of the Polish Academy of Sciences. Nauka polska 8 no.3:173-177 Jl-S '60.

1. Instytut Chemii Fizycznej, Polska Akademia Nauk, Warszawa.

S/081/62/000/024/012/073
B117/B144

AUTHORS: LGalska-Krajewska, A., Zieborak, K., II. Galska-Krajewska, A., III. Galska-Krajewska, A.

TITLE: Rectification in quaternary positive-negative azeotrope mixtures

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24, 1962, 89, abstract 24B627 (Bull. Acad. polon. sci. Sér. sci. chim., v. 10, no. 1, 1962, 39-43; 45-49; 51-56 [Eng.; summary in Russ.])

TEXT: The course of rectification was studied in a quaternary system comprising pyridine, acetic acid, n-nonane and ethyl benzene, by fractional analysis. The substances mentioned form a positive-negative azeotrope containing 17 % by weight acid, 27 % by weight pyridine, 38 % by weight nonane, and 18 % by weight ethyl benzene. Certain anomalies were noted in the rectification of 4 mixtures of different compositions, conducted in a column with an efficiency of 20 theoretical plates. These anomalies were a decrease of the condensation temperature during distillation and the formation of a fraction of variable compostion. The results obtained are

Card 1/2

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Rectification in...

interpreted graphically using a steric diagram of tetrahedral shape. By analogy with the concept of the region of rectification in ternary systems, the concept of a rectification space is introduced, meaning that part of the tetrahedron that limits the region of the mixtures yielding, on rectification, qualitatively equal fractions and residues. In the system studied, 15 spaces of rectification were detected. The formation of the fraction of variable composition is connected with the fact that the line representing the compositions of the distillate passes over the edge surface. In positive-negative quaternary systems with two positive-negative ternary azeotropes a saddle-shaped line appears at the interface of the compositions, connecting the points of compositon of these azeotropes. On the boiling point isobar corresponding to this line a minimum is found in the point of the quaternary azeotrope. [Abstracter's note: Complete translation.]

Card 2/2

GALSKA-KRAJEWSKA, Anna; ZIEBORAK, Kazimierz

The quaternary positive-negative azeotrope. Rocz chemii 36 no.1:119-127 '62.

1. Department of Physical Chemistry, University, Warsaw and Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw.

ZIEBORAK, K.; WYRZYKOWSKA-STANKIEWICZ, D.

A new kind of ternary saddle azeotrope. Bul chim PAN 8 no.3:137-142 '60. (EEAI 10:9/10)

1. Department of Basic Raw Materials, Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W. Swietoslawski.

(Azeotropes)

ZIEBORAK,K.; GALSKA-KRAJEWSKA,A.

Ternary positive homoazeotropes formed by benzene, cyclohexane and alcohols of the aliphatic series. Bul Ac Pol chim 6 no.12:763-769 '58.

(EEAI 9:6)

1. Department of Physical Chemistry, Warsaw University. Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W.Swietoslawski.

(Azeotropes) (Benzene) (Cyclohexane)
(Alcohols) (Aliphatic compounds)

ZIEBORAK, K.; BRZOSTOWSKI, W.; KAMINSKI, J.

Vapor-liquid equilibria in ternary system formic - acid - pyridine water. Bul Ac Pol chim. 6 no.6:371-376 '58. (EEAI 9:6)

1. Department of Physical Chemistry, Warsaw University. Basic Raw Materials Department, Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W.Swietoslawski.
(Formic acid) (Pyridine) (Water)
(Vapors) (Liquids) (Phase rule and equilibrium)
(Systems (Chemistry))

ZIEBORAK,K.; WYRZYKOWSKA-STANKIEWICZ,D.

A series of ternary positive-negative azeotropes formed by 2-picoline, acetic acid, and n-paraffins. Bul Ac Pol chim. 6 no.6:377-382 '58. (KRAI 9-6)

1. Basic Raw Materials Department, Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W.Swietoslawski.

(Cresol) (Naphthalene) (Mixtures) (Tonometers)

ZIEBORAK,K.; WYRZYKOWSKA-ZTANKIEWICZ,D.

The composition and the boiling temperatures in the series of ternary positive-negative azeotropes. Bul Ac Pol chim 6 no.12: 755-762 '58. (KRAI 9:6)

1. Institute of Physical Chemistry, Polish Academy of Sciences. Department of Physical Chemistry, Warsaw University. Presented by W.Swietoslawski.
(Azeotropes)

SWIETOSLAWSKI, W.; ZIEBORAK, K.; GALSKA-KRAJEWSKA, A.

On the series of quaternary positive azeotropes. The lower and upper limit of the azeotropic range of the series. Bul Ac Pol chim 7 no.1:43-49 '59. (EEAI 9:7)

1. Institute of Physical Chemistry, Polish Academy of Sciences. Department of Physical Chemistry, Warsaw University. Presented by W.Swietoslawski.
(Azeotropes)

ZIEBORAK, K.; WYRZYKOWSKA-STANKIEWICZ, D.

Quaternary positive-negative system n-nonane-o-xylenepyridine acetic acid. Bul Ac Pol chim 7 no.4:247-251 '59. (EEAI 9:7)

1. Department of Physical Chemistry, Warsaw University. Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W.Swietoslawski.

(Azeotropes) (Nonane) (Xylene) (Pyridine)
(Acetic acid) (Systems (Chemistry))

ZIEBORAK, K.; GALSKA-KRAJEWSKA, A.

Quaternary positive-negative azeotrope. Bul Ac Pol chim 7 no.4: 253-258 '59. (EEAI 9:7)

1. Department of Physical Chemistry, Warsaw University. Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W.Swietoslawski.
(Azeotropes)

ZIEBORAK,K.; OLSZEWSKI,K.

Solubility of n-paraffins in acetic acid. Bul Ac Pol chim 6 no.2:115-121 '58. (EEAI 9:6)

1. Basic Raw Materials Department, Institute of Physical Chemistry. Polish Academy of Sciences. Communicated by W.Swietoslawski.
(Paraffins) (Acetic acid)

ZIEBORAK,K.; OLSZEWSKI,K.

Metastable liquid phases of the binary systems formed by acetic acid with n-paraffins. Bul Ac Pol chim 6 no.2:123-126 '58.
(EEAI 9:6)

1. Communicated by W.Swietoslawski.
(Acetic acid) (Paraffins) (Phase rule and equilibrium)
(Liquids) (Systems (Chemistry))

ZIEBORAK,K. OLSZEWSKI,K.

Critical solubility of the series of binary mixtures of n-paraffins with some solvents. Bul Ac Pol chim 6 no.2:127-131 '58. (EEAI 9:6)

1. Communicated by W.Swietoslawski.
(Paraffins) (Solvents) (Mixtures)

ZIEBORAK,K.; WYRZYKOWSKA-STANKIEWICZ,D.

The influence of polar components on the composition of ternary positive-negative azeotropes containing n-undecane. Bul Ac Pol chim. 6 no.8:517-522 '58. (EEAI 9:6)

1. Basic Raw Materials Department, Institute of Physical Chemistry, Polish Academy of Sciences. Presented by W.Swietoslawski.
(Azeotropes) (Undecane)
(Systems (Chemistry))

ZIEBORAK, K.; BRZOSTOWSKI, W.

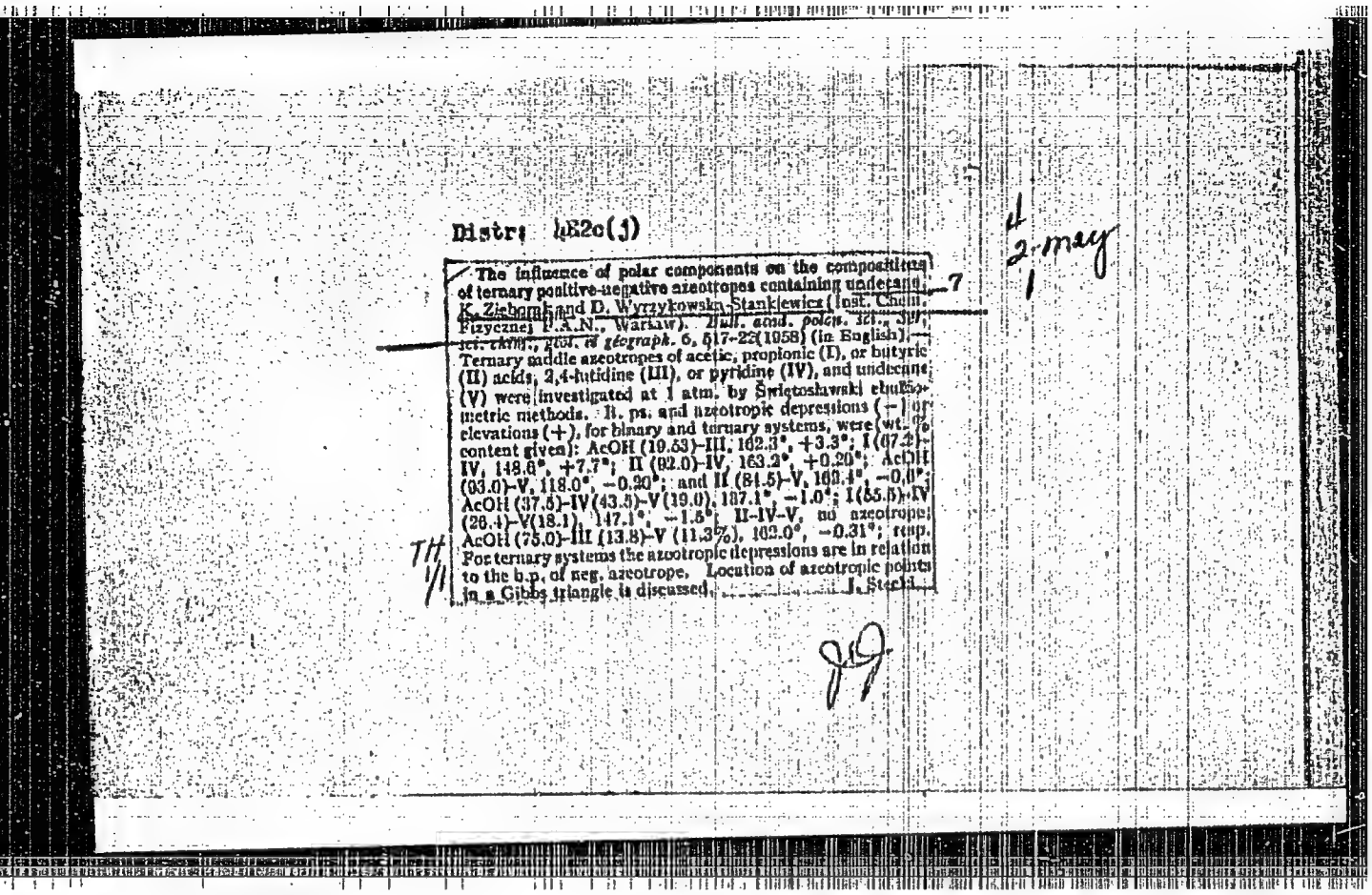
Vapor-liquid equilibriums. IV. Thermodynamic excess potential for the series of binary azeotropes acetic acid-n-paraffins. p. 1145.

POLAND

ROCZNIKI CHEMII. (Polska Akademia Nauk) Warszawa/ Vol. 32, no. 5, 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 7, July 1959

UNCL.



Distr: 4E2c(j)

The influence of polar components on the composition of ternary positive-negative azeotropes containing undecane. K. Ziebarnd and D. Wyrzykowska-Stankiewicz (Inst. Chem. Fizyczne) P.A.N., Warsaw). *Bull. acad. polon. sci., Sér. sci. chim., géol. et géograph.* 6, 517-23(1958) (in English).—Ternary middle azeotropes of acetic, propionic (I), or butyric (II) acids, 2,4-lutidine (III), or pyridine (IV), and undecane (V) were investigated at 1 atm. by Świętosławski ebulliometric methods. B. ps. and azeotropic depressions (−) or elevations (+), for binary and ternary systems, were (wt. % content given): AcOH (19.53)-III, 162.3°, +3.3°; I (67.2)-IV, 148.6°, +7.7°; II (92.0)-IV, 163.2°, +0.20°; AcOH (93.0)-V, 118.0°, −0.20°; and II (84.5)-V, 160.4°, −0.0°; AcOH (37.5)-IV (43.5)-V (19.0), 137.1°, −1.0°; I (55.5)-IV (26.4)-V (18.1), 147.1°, −1.5°; II-IV-V, no azeotrope; AcOH (75.0)-III (13.8)-V (11.3%), 162.0°, −0.31°; resp. For ternary systems the azeotropic depressions are in relation to the b.p. of neg. azeotrope. Location of azeotropic points in a Gibbs triangle is discussed. J. Stecki

TH 1/1

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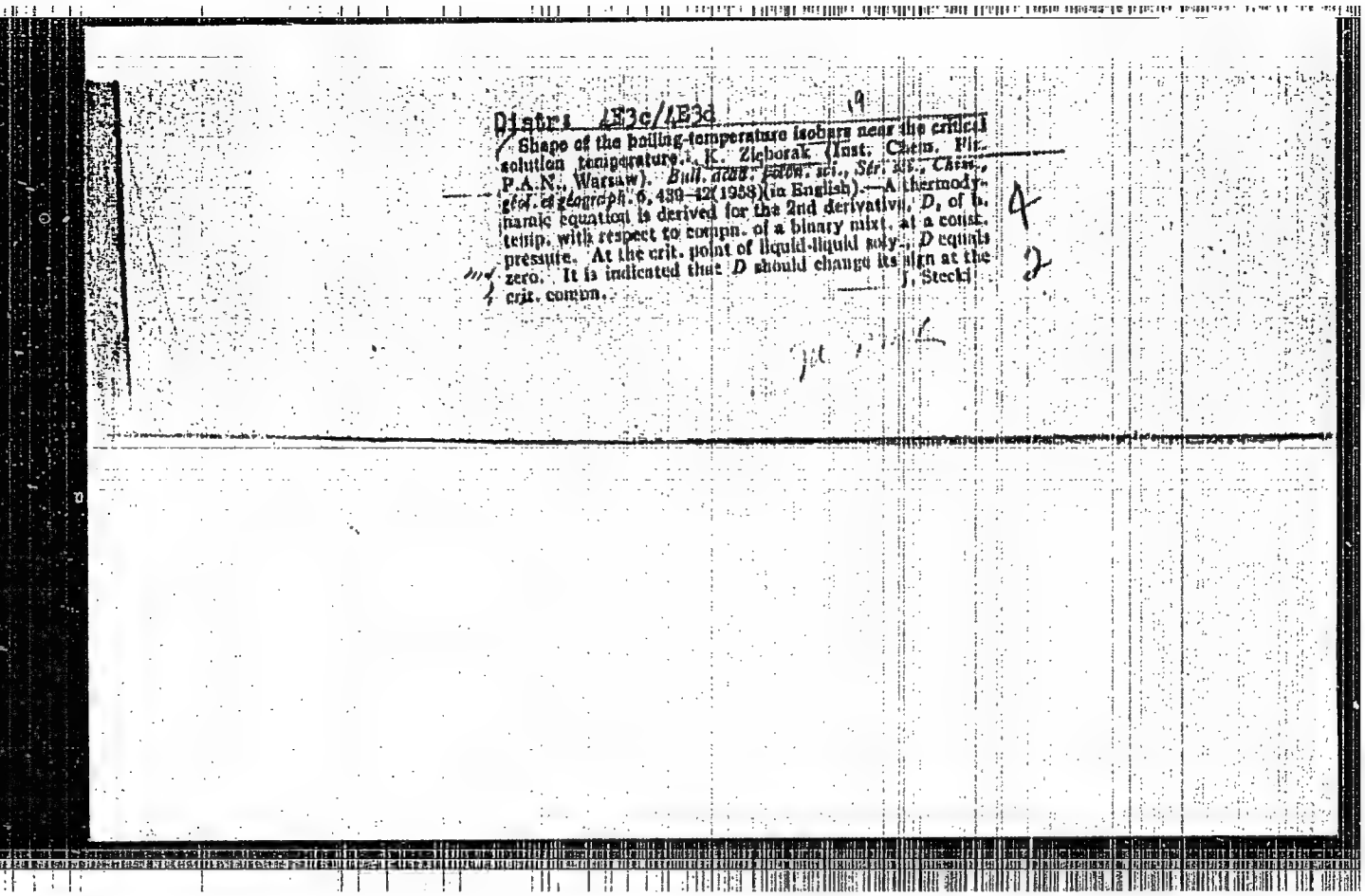


Distr: 4E3c/4E3d

Shape of the boiling-temperature isobars near the critical solution temperature. K. Zieborak (Inst. Chem. Fiz., P.A.N., Warsaw). *Bull. acad. polon. sci., Sér. sci., Chim., géol. et géograph.* 6, 439–42(1958)(in English).—A thermodynamic equation is derived for the 2nd derivative, D, of b. temp. with respect to compn. of a binary mixt. at a const. pressure. At the crit. point of liquid-liquid soly., D equals zero. It is indicated that D should change its sign at the crit. compn. J. Stecki

4
2

The boiling-temperature isobars of liquid mixtures near the critical solubility temperature in the hexane-aniline system. K. Ziebarak (Inst. Chem. Fiz. P.A.N., Warsaw). *Bull. acad. polon. sci., Sér. sci., Chim., géol. et géograph.* 6, 443–7(1958)(in English); cf. preceding abstr.—B.ps. of the hexane-aniline mixts. contg. aniline up to 80 mol. % were detd. by using a single-stage Święteslawski ebulliometer; the pressures controlled up to ±0.5 mm. Hg were 553.0, 630.9, 670.2, 681.5, 695.5, and 731.0 mm. Hg, and were read from b.ps. of H_2O filling another ebulliometer (*C.A.* 52, 17802g). The system was heteropzeotropic and homozeotropic (cf. Święteslawski *Ebulliometric Measurements*, 1945 (*C.A.* 39, 2092²)) at lower and higher pressures, resp. The isobars of b.ps. plotted against mols fraction exhibited inflection points of nonzero slopes. Crit. soln. temp. was 60.1°. The hexane b.ps. and the 3-phase equil. temps., were 59.12, 62.34; 62.93, 66.60; 64.79, 68.72; at 553, 630.9, and 670.8 mm. Hg., resp. The respective temp. differences were smaller than 3.93°, in agreement with theoretical predictions (cf. Stecki, *C.A.* 51, 12586c). J. Stecki

Distr: 4E2c(j)/4E3d

5
2-May
2

The boiling-temperature isobars of the isooctane-aniline system at various pressures. K. Zieborak (Inst. Chem. Fiz. P.A.N., Warsaw). *Bull. acad. polon. sci., Sér. sci. chim., géol. et géograph.* 6, 449-52(1958)(in English); cf. preceding abstr.—B.ps. of 2,2,4-trimethylpentane (I) aniline (II) mixts. contg. II 0-81 mol. % were detd. at 80.6, 110.8, 133.9, 157.6, 216.8, and 340.8, and at 871.0, 375.0, 463.0, 563.6, 623.5, and 741.5 mm. Hg. Crit. soly. temp. was 73.8°. At higher pressures the system was homozeotropic (cf. W. Swietoslawski *Ebulliometric Measurements*, 1945, (*C.A.* 39, 2691[9]), and the isobars showed inflection points with nonhorizontal slopes. At 6 lower pressures the system was heteroazeotropic (*loc. cit.*) and the resp. b. ps. of I and of satd. liquid layers, were: 35.35, 38.69; 41.5 42.80; 45.60, 47.19; 49.88, 51.82; 60.30, 62.00; and 73.85, 77.61°.

J. Stecki

Distr: 4E3d/4E2b(w)/4E3c/4E2c(j)

ZIEBORAK, K.; GALSKA-KRAJEWSKA, A.

Quaternary positive-negative azeotrope. p. 555

ROCZNIKI CHEMII. (Polska Akademia Nauk) Warszawa, Poland, Vol. 33, no. 2, 1959

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 9, September 1959. Uncl.

B-8

COUNTRY : Poland
CATEGORY : Physical Chemistry--Thermodynamics. Thermochemistry. Equilibrium. Physicochemical analysis. Phase transformations.
ABS. JOUR. : RZKhim., No. 16 1959, No. 56359

AUTHOR : Zieborak, K., Wyrzykowska-Stankiewicz, D.
INST. : Polish Academy of Sciences
TITLE : The Influence of Polar Components on the Compositions of Ternary Positive-Negative Azeotropes Containing n-Undecane
ORIG. PUB. : Bull Acad Polon Sci, Ser Sci Chim, Geol et Geograph, 6, No 8, 517-522, XLIV (1958)
ABSTRACT : The authors have investigated the effect of different polar components on the composition of a ternary saddle-point azeotrope of the type [(-)(A_j, P_i) (+) H_1,], where H_1 is the permanent nonpolar component (n-undecane), A_j is the acid component (acetic (A_1), propionic (A_2), or butyric (A_3) acid), and P_i is the basic component (pyridine (P_1), 2-picoline (P_2), or 2,4-lutidine (P_3)). The investigations were made by a comparative method described in an

CARD: 1/3

B-8

COUNTRY : Poland
CATEGORY :

ABS. JOUR. : RZKhim., No. 16 1959, No. 56359

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : the system P_3-A_4-H_{11}, were studied. Positive-negative (saddle-point) azeotropes are formed in all systems except in the system A_3-P_1-H_{11}; thus H_{11} lies outside the azeotropic limits relative to the n-paraffins for P_1 and for the (A_j, P_i)-type double azeotrope of the system A_3-P_3. The points corresponding to the compositions of the ternary azeotropes fall on a straight line when plotted on the ternary diagram.

S. Byk

CARD: 3/3

ZIEBORAK, K

4

The compositions and boiling temperatures in the series of ternary positive-negative azeotropes. K. Ziebarak and D. Wyrzykowska-Stankiewicz (Univ., Warsaw). *Bull. acad. polon. sci., Sér. sci., Chim., géol. et géograph.* 6, 755-62(1958) (in English).—Compns. and b.ps. of a series of ternary pos-neg. azeotropes formed by acetic, propionic, or butyric acid; pyridine, 2-picoline, 2,4-lutidine, or 2,6-lutidine; and normal aliphatic hydrocarbons (*C.A.* 52, 10360g) were calcd. from Malesinski equations (*C.A.* 51, 12580f) and by a modified method. In the latter the dimerization of acids was taken into account by use of the Malesinski equations in place of the nominal mole fractions of components in binary azeotropes. The "true" ones calcd. from the Marek equations (*C.A.* 49, 7310g and Z. and Brzustowski, *C.A.* 52, 18340g). Correlation of the azeotropic b.ps. and the squared mole fractions of the hydrocarbon is discussed. J. Stecki

B-8

POLAND / Physical Chemistry--Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions.

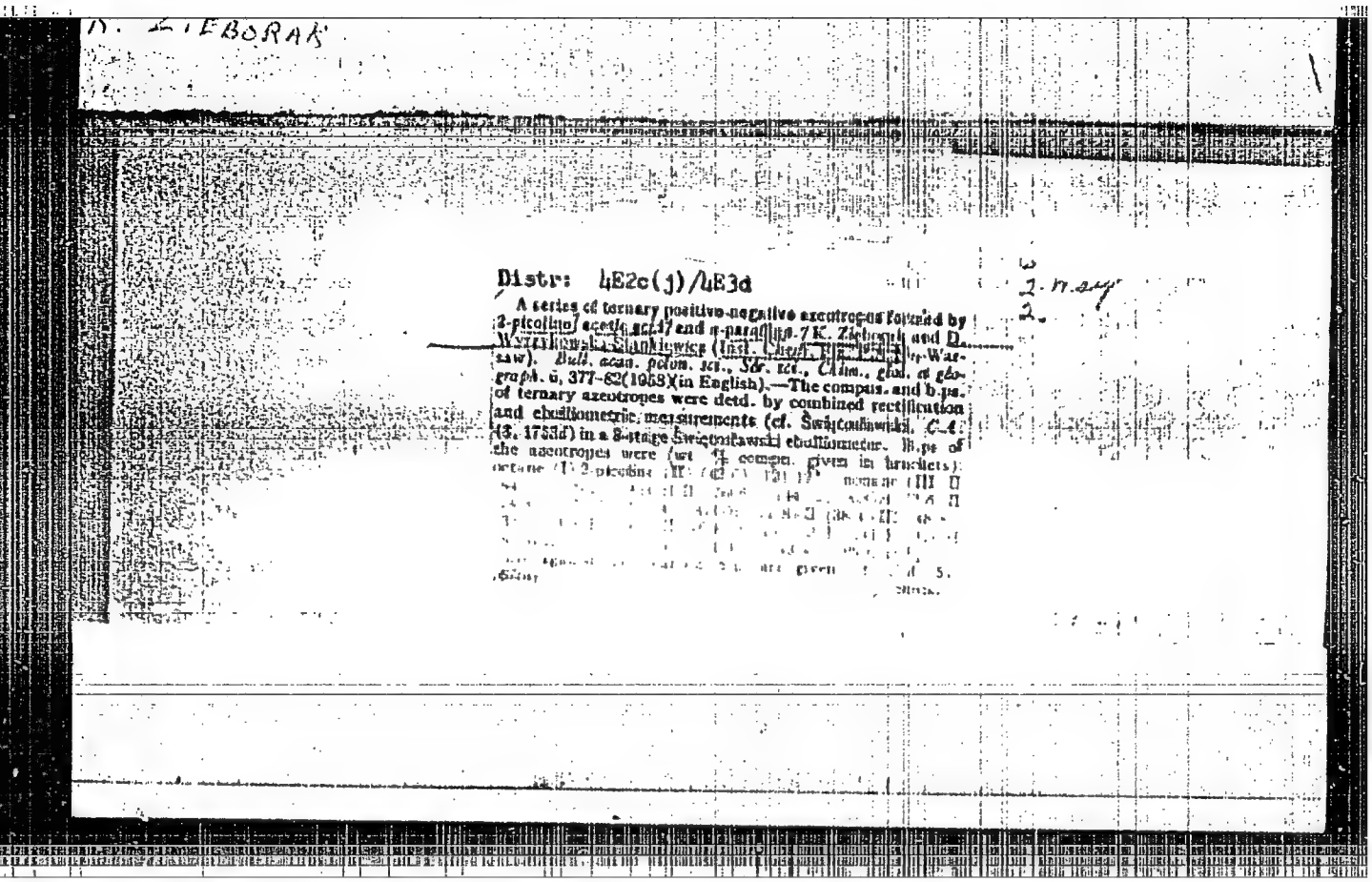
Abs Jour : Referat Zhur--Khimiya, No. 11, 1959, 37832

Author : Zieborak, K.; Brzostowski, W.; and Kaminski, J.
Inst : Polish Academy of Sciences
Title : Liquid-Vapor Equilibria in the Ternary System Formic Acid-Pyridine-Water

Orig Pub : Bull Acad Polon Sci, Ser Sci Chim Geol, et Geograph, 6, No. 6, 371-372 (1958) XXX (in English with a Russian summary)

Abstract : The authors have investigated liquid-vapor equilibria in the system formic acid-pyridine and in the ternary system formic acid-pyridine-water, using a modified Swietoslawski ebulliometer and a method which has been described in an earlier

Card 1/3



D. ZEBORAK

Distr: 4E2c(j)/4E3d

A series of ternary positive-negative azeotropes formed by 2-picoline[acetic acid and n-paraffins.] K. Ziebarth and D. Wyrzykowska-Stankiewicz (Inst. Chem. [illegible] Warsaw). *Bull. acad. polon. sci., Sér. sci., Chim., géol. et géogr.* 6, 377–82(1958)(in English).—The compns. and b.pts. of ternary azeotropes were detd. by combined rectification and ebulliometric measurements (cf. Świętosławski, *C.A.* 43, 1755d) in a 5-stage Świętosławski ebulliometer. [illegible] of the azeotropes were (wt. % compn. given in brackets): octane (1) 2-picoline (II) [illegible] mixture (III) [illegible] are given [illegible] 5.

B-8

POLAND / Physical Chemistry--Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions.

Abs Jour : Referat Zhur--Khimiya, No. 11, 1959, 37829

Author : Zieborak, K
Inst : Polish Academy of Sciences
Title : On the Shape of the Boiling Temperature Isobars Near the Critical Solution Temperature.

Orig Pub : Bull Acad Polon Sci, Ser Sci Chim, Geol et Geograph, 6, No. 7, 439-442 (1958) XXXVII (in English with a Russian summary)

Abstract : The author discusses homozeotropy-heterozeotropy transitions in binary liquid systems with an upper consolution temperature. It follows from the equation for the bp isobar of a binary mixture (I. Prigogine and R. Defay, Chemical Thermo-

Card 1/3

POLAND / Physical Chemistry--Thermodynamics. B-8
Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions.

Abs Jour : Referat Zhur--Khimiya, No. 11, 1959, 37830

Author : Zieborak, K.
Inst : Polish Academy of Sciences
Title : On the Boiling-Point Isobars of Aniline-n-Hexane Mixtures Near the Critical Solution Temperature.

Orig Pub : Bull Acad Polon Sci, Ser Sci Chim, Geol et Geograph, 6, No. 7, 443-447 (1958) XXXVII (in English with a Russian summary)

Abstract : The author has investigated the bp of aniline-n-hexane mixtures with a view towards the study of heterozeotropic-homozeotropic transition (see preceding abstract) as the pressure is changed. The measurements were made by the comparative

Card 1/3

POLAND / Physical Chemistry--Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour : Referat Zhur--Khimiya, No. 11, 1959, 37830

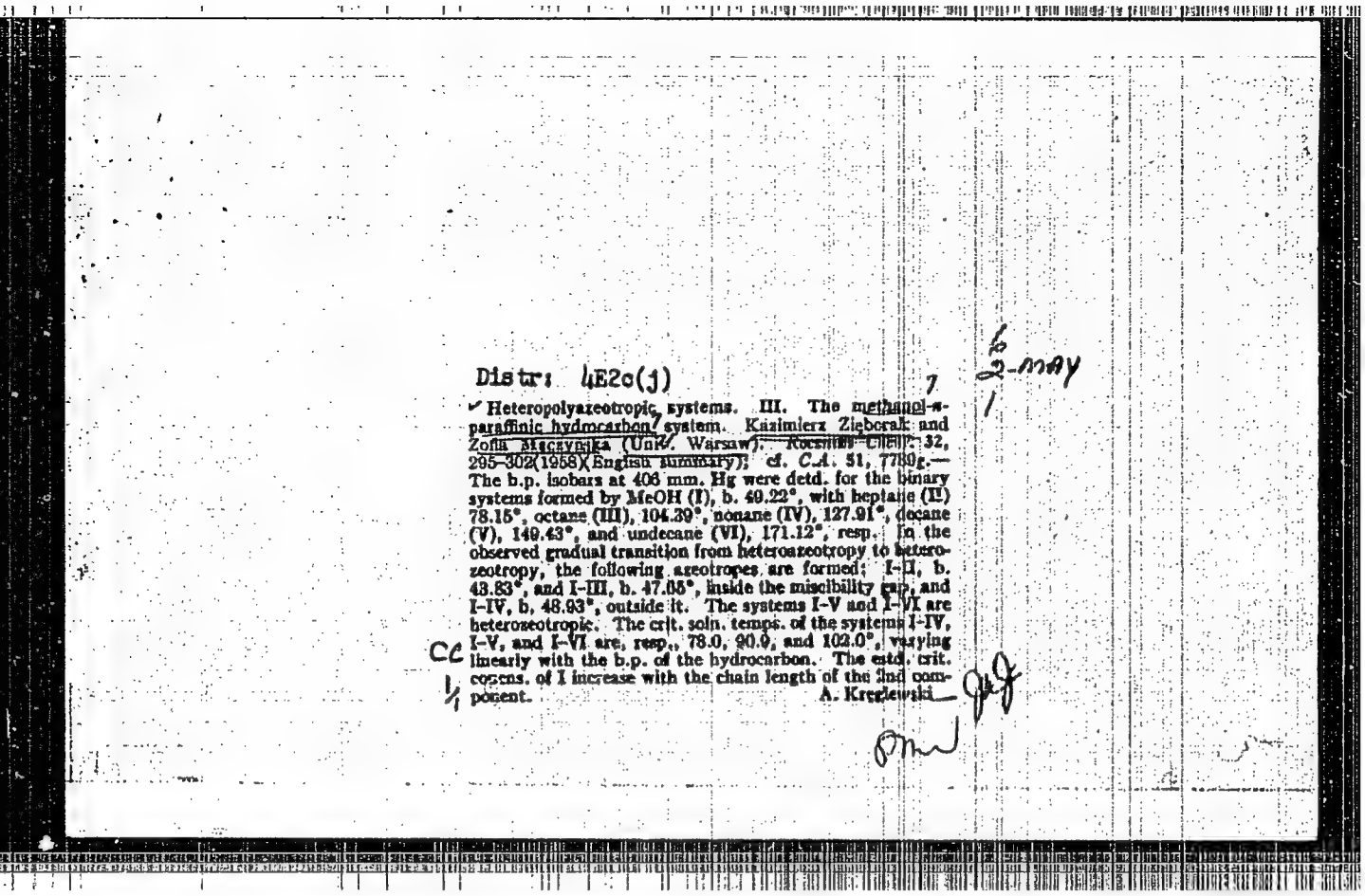
boiling component, n-hexane) is 3.93°, which is considerably below the value obtained previously (about 80) (RZhKhim, 1958, 31663) for regular solutions. When the pressure is decreased (together with the temperature) this heterozeotropic rise also decreases. — S. Byk

Card 3/3

ZIEBORAK, K.

Distr: 4E2c(j)

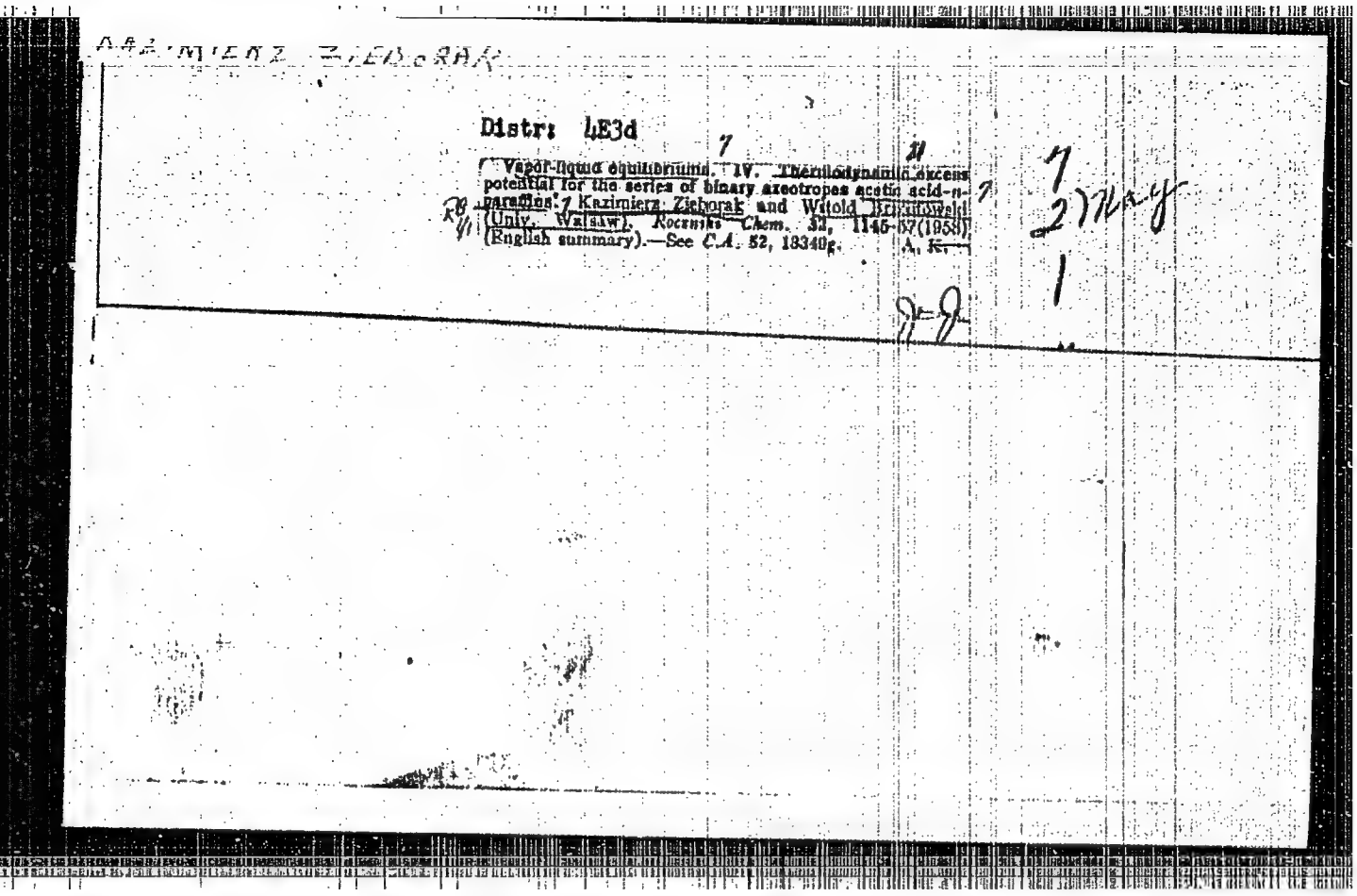
The influence of polar components on the compositions of ternary positive-negative azeotropes containing undecane. K. Zieborak and D. Wyrzykowska-Stankiewicz (Inst. Chem. Fizyczna P.A.N., Warsaw). *Bull. acad. polon. sci., Sér. sci. chim., géol. et géograph.* 6, 517-22(1958) (in English).—Ternary saddle azeotropes of acetic, propionic (I), or butyric (II) acids, 2,4-lutidine (III), or pyridine (IV), and undecane (V) were investigated at 1 atm. by Świętosławski ebullimetric methods. B. ps. and azeotropic depressions (−) or elevations (+), for binary and ternary systems, were (wt. % content given): AcOH (19.53)-III, 162.3°, +3.3°; I (67.2)-IV, 148.6°, +7.7°; II (92.0)-IV, 163.2°, +0.20°; AcOH (93.0)-V, 118.0°, −0.20°; and II (84.5)-V, 162.4°, −0.6°; AcOH (37.8)-IV (43.6)-V (19.0), 137.1°, −1.0°; I (55.5)-IV (26.4)-V (18.1), 147.1°, −1.5°; II-IV-V, no azeotrope; AcOH (75.0)-III (13.8)-V (11.3%), 163.0°, −0.31°; resp. For ternary systems the azeotropic depressions are in relation to the b.p. of neg. azeotrope. Location of azeotropic points in a Gibbs triangle is discussed. J. Sterli



Distr: 4E2c(j)

Heteropolyazeotropic systems. III. The methanol-n-paraffinic hydrocarbon system. Kazimierz Zięborak and Zofia Stączyńska (Univ., Warsaw). Roczniki Chem. 32, 295–302(1958)(English summary); cf. C.A. 51, 7780g.—The b.p. isobars at 406 mm. Hg were detd. for the binary systems formed by MeOH (I), b. 49.22°, with heptane (II) 78.15°, octane (III), 104.39°, nonane (IV), 127.91°, decane (V), 149.43°, and undecane (VI), 171.12°, resp. In the observed gradual transition from heteroazeotropy to heterozeotropy, the following azeotropes are formed: I–II, b. 43.83°, and I–III, b. 47.05°, inside the miscibility gap, and I–IV, b, 48.93°, outside it. The systems I–V and I–VI are heterozeotropic. The crit. soln. temps. of the systems I–IV, I–V, and I–VI are, resp., 78.0, 90.9, and 102.0°, varying linearly with the b.p. of the hydrocarbon. The estd. crit. concns. of I increase with the chain length of the 2nd component.

A. Kreglewski



ZIEBORAK

Distr: 4E3d

Vapor-liquid equilibrium. IV. Thermodynamic excess potential for the series of binary azeotropes acetic acid–n-paraffins. Kazimierz Zieborak and Witold Krzyżowski (Univ. Warsaw). Roczniki Chem. 32, 1145–57(1958) (English summary).—See C.A. 52, 18340g.

A. K.

POLAND / Physical Chemistry. Thermodynamics. Thermochemistry. B-8
Equilibria. Physicochemical Analysis. Phase Transitions.

Abs Jour : Ref Zhur - Khimiya, No 3, 1959, No. 7483

Author : Zieborak, K.; Brzostowski, W.
Inst : Polish Academy of Sciences
Title : Vapor-Liquid Equilibria. IV. Thermodynamic Excess Potential for the Series of Binary Azeotropes Acetic Acid - n-Paraffins

Orig Pub : Bull. Acad. polon. sci. Ser. sci. chim., geol. et geogr., 1958, 6, No 3, 169-177, XIII, XIV

Abstract : Liquid-vapor equilibrium of the binary system CH_3COOH-n-C_8H_{18} is studied at atmospheric pressure. The measurements were made in the previously described (RZhKhim, 1958, 3774) improved ebulliometer of Swietoslawski. On the basis of the experimental equilibria data for the system under study there were calculated the values of thermodynamic excess

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POLAND / Physical Chemistry. Thermodynamics. Thermochemistry. B-8
Equilibria. Physicochemical Analysis. Phase Transitions.

Abs Jour : Ref Zhur - Khimiya, No 3, 1959, No. 7483

potential ($\Delta\varphi^E$) and of chemical excess potential (μ_i^E). $\Delta\varphi^E$ was calculated according to the formula: $\Delta\varphi^E = x_1\mu_1 + x_2\mu_2^E$. Calculation of μ_1^E was effected by two methods: 1) utilizing the second virial coefficient - β_i, according to the formula - $\mu_1^E = RT \ln (Py_1/p_{oi}x_1) + C(v_{oi} - \beta_i)(P - p_{oi})$, wherein P is total pressure of mixture vapor, y_i -- molar portion of component i in the gaseous phase, x_i -- molar portion in liquid phase, p_{oi} -- partial pressure of component i vapor at temperature T; v^i -- molecular volume of liquid component i, C -- a constant equal to 0.03187 calories; 2) by the method previously proposed by Marek (RZhKhim, 1955, 18306; 1957, 40570), taking into account the fact of chemical equilibrium between molecules of monomer and dimer CH_3COOH in the gaseous phase, in accordance with the formula: $\mu_1^E = RT \ln f_1 = RT \ln$

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POLAND / Physical Chemistry. Thermodynamics. Thermochemistry. B-8
Equilibria. Physicochemical Analysis. Phase Transitions.

Abs Jour : Ref Zhur - Khimiya, No 3, 1959, No. 7527

Author : Zieborak, Kazimierz; Maczynskay, Zofia
Inst : Not given
Title : Heteropolyazeotropic Systems. III. The System Methanol - n-Paraffin Hydrocarbons

Orig Pub : Roczn. chem., 1958, 32, No 2, 295-302

Abstract : A study was made at a pressure of 406 mm Hg of the boiling point isobars of binary systems formed by methanol (I) with n-heptane (II), n-octane (III), n-nonane (IV), n-decane (V) and n-dodecane (VI). Boiling points were determined by means of two ebulliometers of Swietoslawski with an accuracy of ± 0.01°. Systems I-II and I-III are heteroazeotropic, according to the nomenclature proposed by Swietoslawski (Swietoslawski, W.; Roczniki chem., 1933,

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POLAND / Physical Chemistry. Thermodynamics. Thermochemistry. B-8

Abs Jour : Ref Zhur - Khimiya, No 3, 1959, No. 7527

13, 125), system I-IV is homoazeo-heteroazeotropic; systems I-V and I-VI -- are heteroazeotropic. Critical temperatures of dissolution of systems I-IV, I-V and I-VI were determined; they increase linearly with higher boiling point of n-paraffin hydrocarbons. Concentration of methanol at critical point of dissolution increases with increasing length of hydrocarbon chain. Part II see RZhKhim, 1958, 35361. -- S. Byk

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POLAND/Thermodynamics. Thermochemistry. Equilibria. Physico-chemical Analysis. Phase Transitions. D

Abs Jour: Ref Zhur-Khim., No 15, 1958, 49539.

the isobaric surface of boiling temperatures was determined. Position of ridge line was determined by the Swietoslawski method of transversal sections. For determination of the trough-line which connects the points representing positive binary A, with the positive-negative A, there has been worked out another method of ebullionetric determinations, which is designated as the method of lateral sections. Results of determinations are compared in tables and on Gibbs triangles. The determined compositions and boiling temperatures of binary A II-III, I-II are in agreement with literature data. In the case of I-III system (not previously investigated) it was as-

Card : 2/3

POLAND/Physical Chemistry. Thermodynamics. Thermochemistry. Equilibria. Physical-Chemical Analysis. Phase Transitions. B

Abs Jour: Ref Zhur-Khimiya, No 22, 1958, 73268.

Author : K.Zieborak, K. Olszewski.
Inst : Academy of Sciences of Poland.
Title : Solubility of n-Paraffins in Acetic Acid.

Orig Pub: Bull. Acad. polon. sci. Ser. sci. chim., géol. et geogr., 1958, 6, No 2, 115-121, IX.

Abstract: The mutual solubility in binary systems produced by CH_3COOH (I) with the n-paraffins-n-octane, n-nenane, n-decane, n-undecane and n-dodecane was studied. The measurements were made by Alekseyev method. The critical dissolution points and the critical concentrations were determined. The

Card : 1/2

POLAND/Physical Chemistry. Thermodynamics. Thermochemistry. Equilibria. Physical-Chemical Analysis. Phase Transitions. B

Abs Jour: Ref Zhur-Khimiya, No 22, 1958, 73269.

Author : Zieborak, K., Olszewski, K.
Inst : Academy of Sciences of Poland.
Title : Metastable Liquid Phases of Binary Systems Formed by Acetic Acid With n-Paraffins.

Orig Pub: Bull. Acad. polon. sci. Sér. sci. chim., geol. et geogr., 1958, 6, No 2, 123-126, IX.

Abstract: The solubility in the systems CH_3COOH (I) - n-hexane and I - n-heptane was studied. The crystallization rate of I is very little. A mixture of I - n-hexane can be undercooled by 20 to 30° before the spontaneous crystallization starts.

Card : 1/2

ZIEBORAK, K.

POLAND / Physical Chemistry. Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical Analyses. Phase Transitions. B

Abs Jour: Ref Zhur-Khimiya, L958, No 20, 66773.

Author : Zieborak K., Maczynska Z., Maczynski A.
Inst : Not given.
Title : Vapor-Liquid Equilibria of Binary Mixtures of the Water-Pyridine Fractions.

Orig Pub: Roczn. chem., 1958, 32, No 1, 85-92.

Abstract: For the purpose of establishing a basis for the azeotropic method of separation of the so-called three-degree fractions (142-145°), the vapor-liquid equilibria data of the binary systems of

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POLAND / Physical Chemistry. Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical Analyses. Phase Transitions.

Abs Jour: Ref Zhur-Khimiya, L958 No 20, 66773.

Abstract: water-2.6-lutidine, water - 3 -picoline, and water - 4 -picoline were investigated at boiling points and at atmospheric pressure. Boiling points of the azeotropes formed were determined and the differences found were not substantial to warrant their separation on this basis (requiring complicated and highly efficient fractional equipment). It was concluded that their separation can be achieved in the less efficient fractionation equipment but employing dilute solutions of these organic substances. Such a separation becomes feasible since under these conditions their volatilities become different (i.e. for 2.6-lutidine it is twice as large as it is for 3 and 4-picoline).

Card 2/2

ZIEBORAK, K.

A conference on Polish raw materials. p. 282.

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

Bulletin - Vol. 2, no. 7, 1954.

On the positive-negative azeotropes formed by naphthalene, cresols, and pyridine bases. XIX. In English. p. 341.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955 Uncl.

ZIEBORAK, K.; STECKI, J.; SWIETOSLAWSKI, W.

Classification of binary systems with limited mutual solubility. In English p.97.
BULLETIN. Varsovie
Vol. 4, no. 2, 1956

So. East European Accessions List Vol. 5, No. 9 September 1956

POLAND/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibria. Phase Transitions. Physicochemical Analysis. D

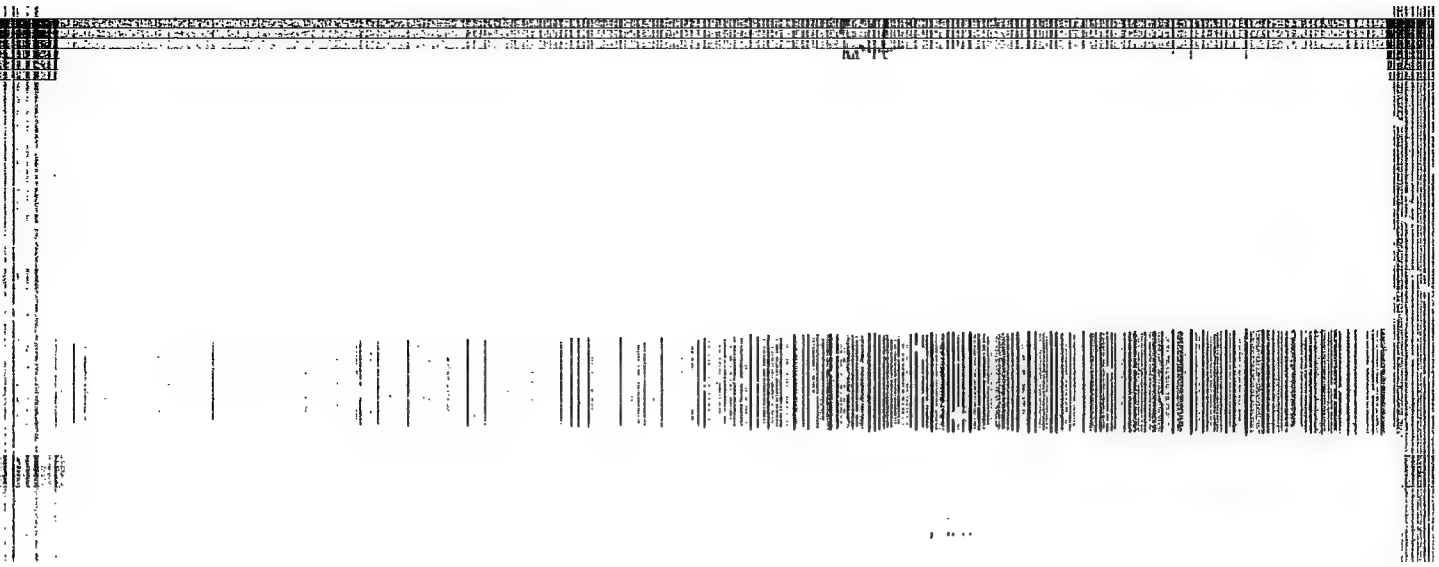
Abs Jour : Ref Zhur Khimiya, No 19, 1959, 67247

Author : Zieborak Kazimierz; Brzostowski, Witold
Inst : -
Title : The Vapor-Liquid Equilibrium. IV. The Excess Thermodynamic Potential for a Series of Binary Azeotropes of Acetic Acid and n-Paraffins.

Orig Pub : Roczn. chem., 1958, 32, No 5, 1145-1157

Abstract : See RZhKhim, 1959, No 3, 7483

Card 1/1



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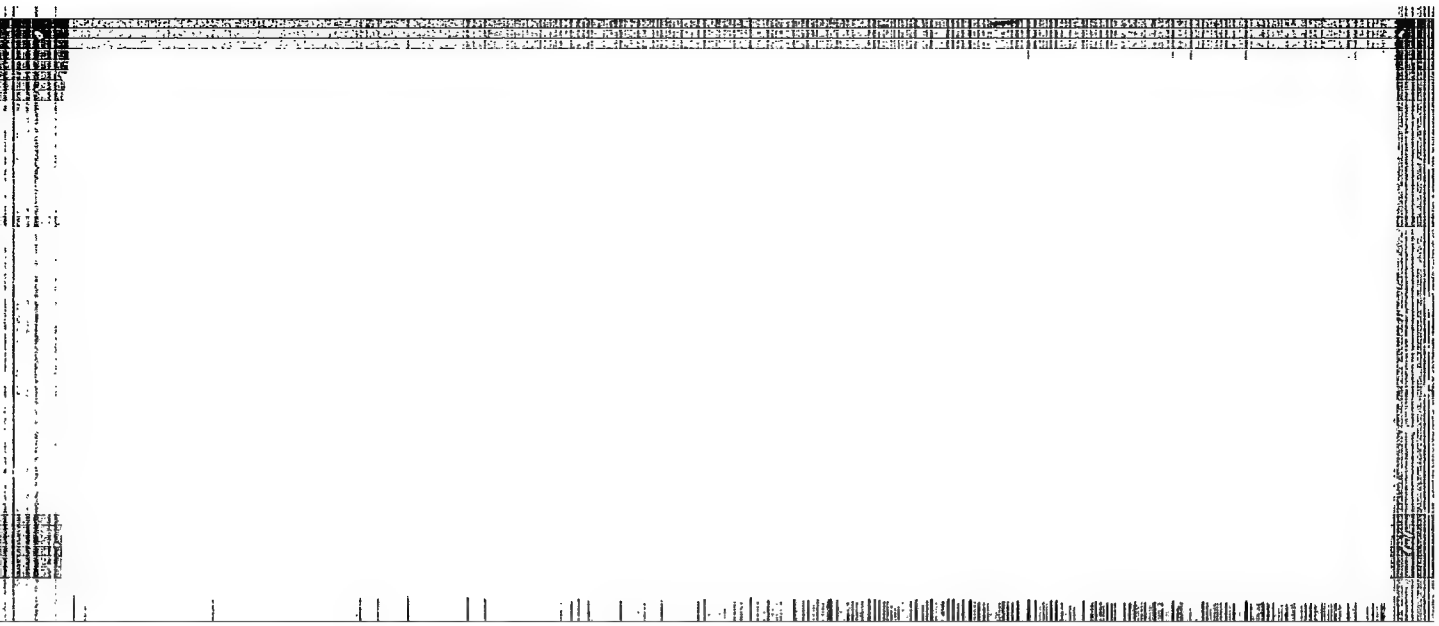

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A method for determining the composition of quaternary azeotropes and the position of heteroazeotropic lines. p. 383.
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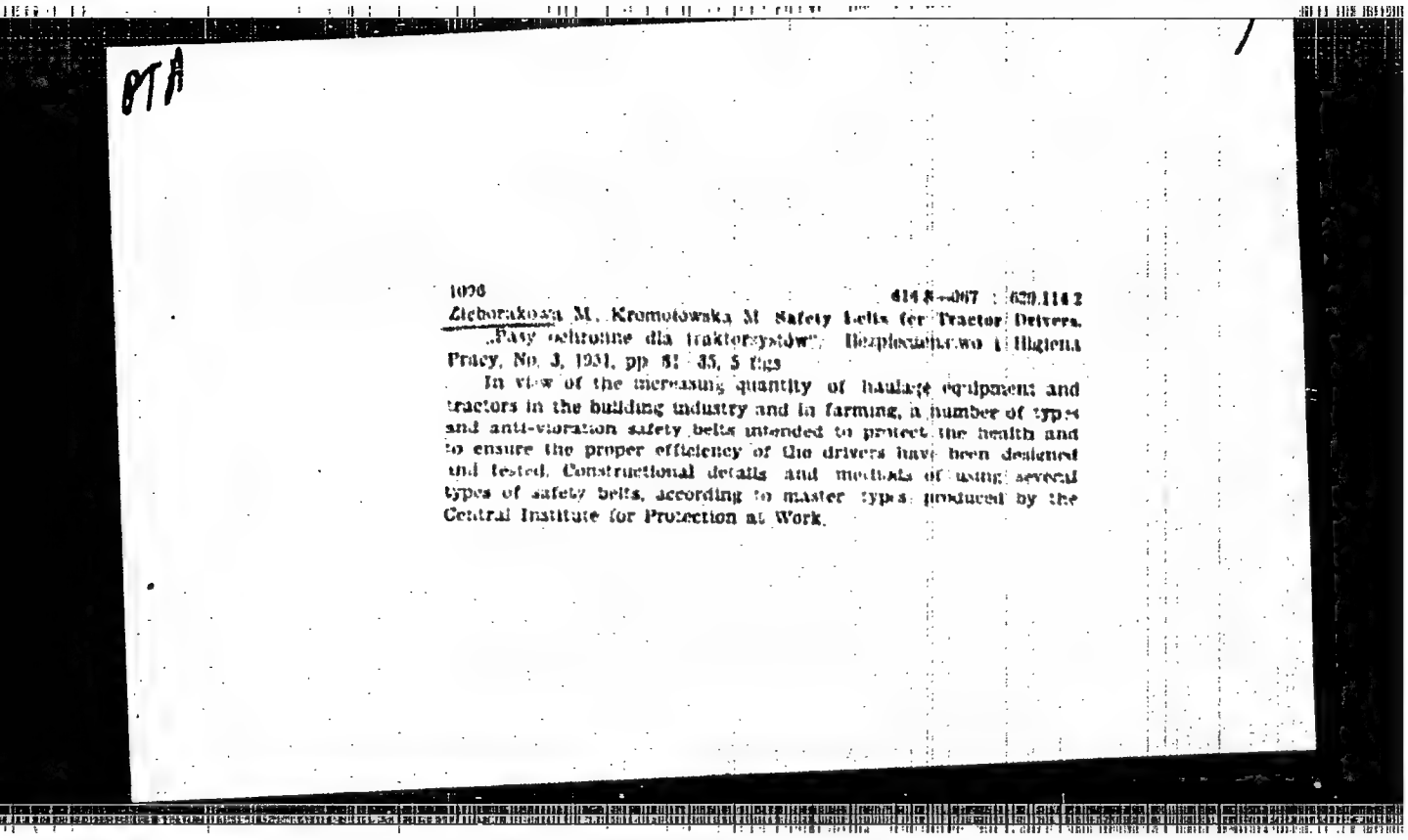

PTA

1098 414.8—067 : 620.114.2

Zieborakowa M., Kromołowska M. Safety Belts for Tractor Drivers. „Pasy ochronne dla traktorzystów". Bezpieczeństwo i Higiena Pracy, No. 3, 1951, pp. 31—35, 5 figs.

In view of the increasing quantity of haulage equipment and tractors in the building industry and in farming, a number of types and anti-vibration safety belts intended to protect the health and to ensure the proper efficiency of the drivers have been designed and tested. Constructional details and methods of using several types of safety belts, according to master types produced by the Central Institute for Protection at Work.

ZIEBORAKOWA, M.

Zieborak K., Ziebórakowa M. Concerning the Positive-Negative Azeotrope Formed by n-Heptane, Acetic Acid and Pyridine. XVII

O azeotropie dodatnio-ujemnym n-heptan - kwas octowy — pirydyna. XVII. Roczniki Chemii (PANs No. 1, 1953, pp. 61-65, 2 figs, 1 tab

The system n-heptane (I) - acetic acid (II) - pyridine (III) was investigated using the ebulliometric method. The formation of the ternary positive-negative almost tangent azeotrope is declared. azeotropic composition in weight percentages is I - 91.5, II - 3.0, III - 6.5 and the boiling point 91.2°. The boiling temperature of the binary negative azeotrope acetic acid-pyridine is 138.1° C and the concentration of pyridine in the azeotrope 44.0 %.

CH.

Zieborakowa M., Kromolowska M. Safety Belts for Tractor Drivers. "Pasy ochronne dla traktorzystów". Bezpieczeństwo i Higiena Pracy, No. 3, 1961, pp. 81-86, 5 figs.

In view of the increasing quantity of haulage equipment and tractors in the building industry and in farming, a number of types and anti-vibration safety belts intended to protect the health and to ensure the proper efficiency of the drivers have been designed and tested. Constructional details and methods of using several types of safety belts, according to master types produced by the Central Institute for Protection at Work.

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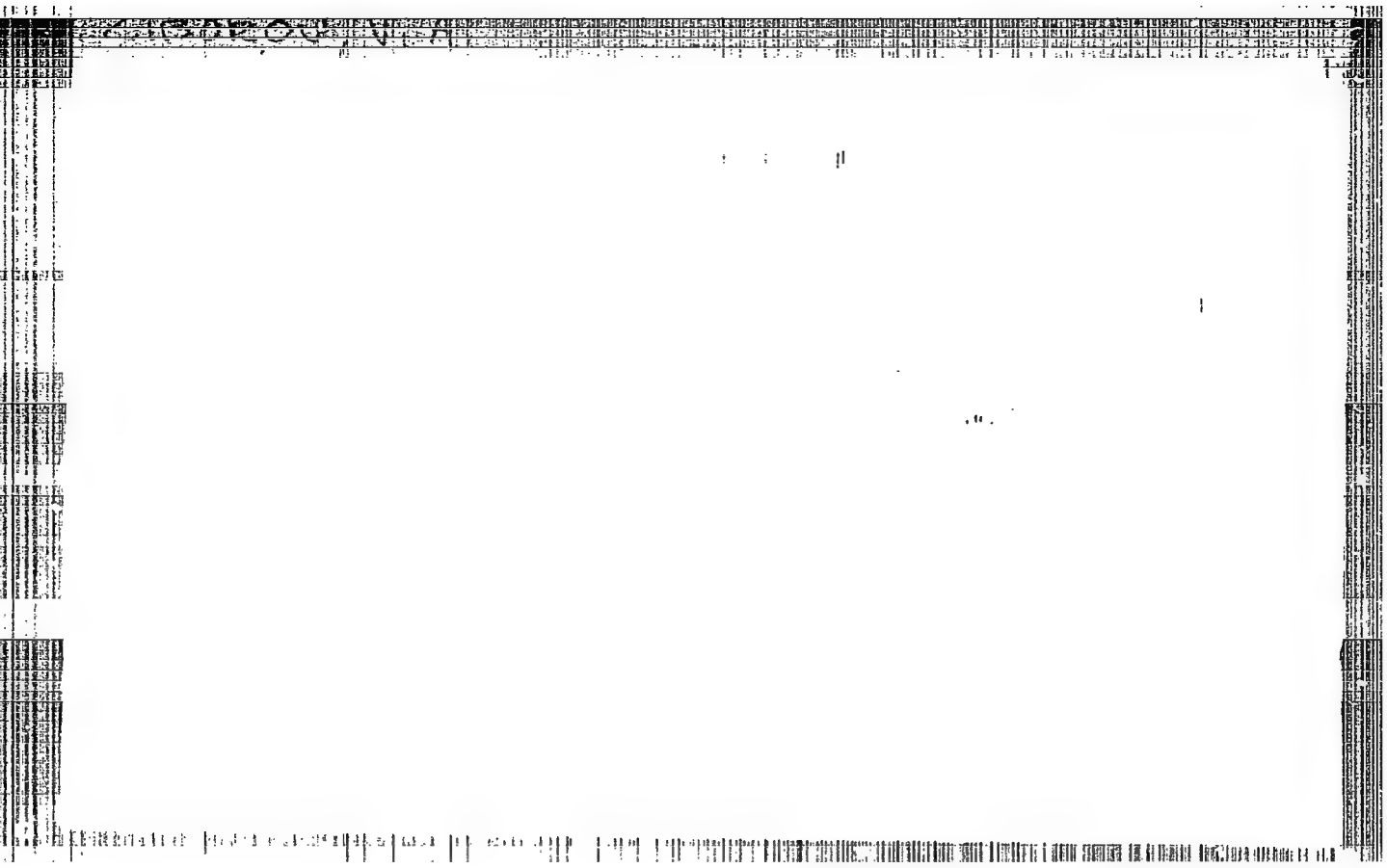

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[New materials from wood waste] Jauni materiali no koksnes atliekam. Riga, Latvijas PSR Zinatnu akad. izd-ba, 1963. 130 p. [In Latvian] (MIRA 17:6)

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PROMYSHLENNOST' ORGANICHESKOI KHIMII, 6(12): 670-671, 1939.

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L 31416-66 EWP(t)/ETI

ACC NR: AP6022969 SOURCE CODE: GE/0025/65/008/012/0671/0678

AUTHOR: Ziegenbein, D.—Tsigenbeyn, D.

ORG: Department of Theoretical Physics, Central Institute for Nuclear Research, Rossendorf (Bereich Theoretische Physik, Zentralinstitut fur Kernforschung)

TITLE: Fission gas behavior in the particle structure of a nuclear fuel paste. Part I. Configuration of the bubbles

SOURCE: Kernenergie, v. 8, no. 12, 1965, 671-678

TOPIC TAGS: nuclear fission, nuclear fuel, gas mechanics

ABSTRACT: The gas behavior is studied as a function of the contact angle θ in a three-phase system (paste). It is pointed out that the gas gives no effect of forces on the particles when the amount of gas is small in relation to the amount of liquid for $\theta < 90^\circ$, while attractive forces are present between the particles in the case of $\theta > 90^\circ$. In the case of high amounts of gas, repulsive forces always act. The author thanks Prof. Dr. K. Fuchs and Dr. Matthies for critical discussions and Mr. Klose for programming and calculating on the ZRA'1 computer. Orig. art. has: 10 figures and 33 formulas. [FA]

SUB CODE: 20, 18 / SUBM DATE: 20Aug65 / OTH REF: 001

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ZIEGENHEIM, SL.

Modernization of the woodworking machines in the Csongrad Furniture Factory.

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HUBKA, M.; FEDELESOVA, M.; ZIEGELHOFFER, A.; SILVAY, J.; SUJANSKY, E.

On the problem of acid-base equilibrium during 2 hours of extracorporeal circulation. Bratisl. lek. listy 43 Pt. 2 no.4: 209-216 '63.

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(HEART, MECHANICAL) (ACID-BASE EQUILIBRIUM)
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ZIEGELHOFFER, A.; KLIMPEL, L.; FEDELESOVA, M.

Changes in the blood protein spectrum following heart operations with extracorporeal blood circulation. Bratisl. lek. listy 43 Pt. 2 no.4:228-234 '63.

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(BLOOD PROTEIN ELECTROPHORESIS)
(HEART SURGERY) (HEART, MECHANICAL)
(BLOOD PROTEIN DISORDERS)

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IHRIG, Denes, okleveles mernok; ZIEGLER, Karoly, okleveles mernok

Experiences of a study trip to Holland and the German Rhine River to investigate flood control. Vizugyi kozl no.4:447-495 '59.

1. "Vizugyi Kozlemenyek" szerkesztoje (for Ihrig). 2. Orszagos Vizugyi Foigazgatosag foigazgatohelyettese (for Ziegler).

ZIEGLER, K.

The breakup and passage of ice barriers formed during the winter of 1955-1956 on the upper section of the Danube near Jochenstein Dam; a review of an article.

P. 506 (VIZUGYI KOZLEMENYEK) Budapest, Hungary Vol. (38) No. 4, 1956.

SO: Monthly Index of East European Acessions (AEEI) Vol. 6, No. 11 November 1957.

JANOSSY, Lajos; ZIEGLER, M.

The hydrodynamical model of wave mechanics. Pt. 1. Acta phys Hung 16 no.1:37-48 '63.

1. Central Research Institute of Physics, Budapest.
2. Editorial Board member, "Acta Physica Academiae Scientiarum Hungaricae" (for Janossy).

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Calculation of pairing energy by means of the eigenfunctions of the Yukawa potential. In English. p. 293.
ACTA PHYSICA. Budapest. Vol. 4, no. 3, 1955.

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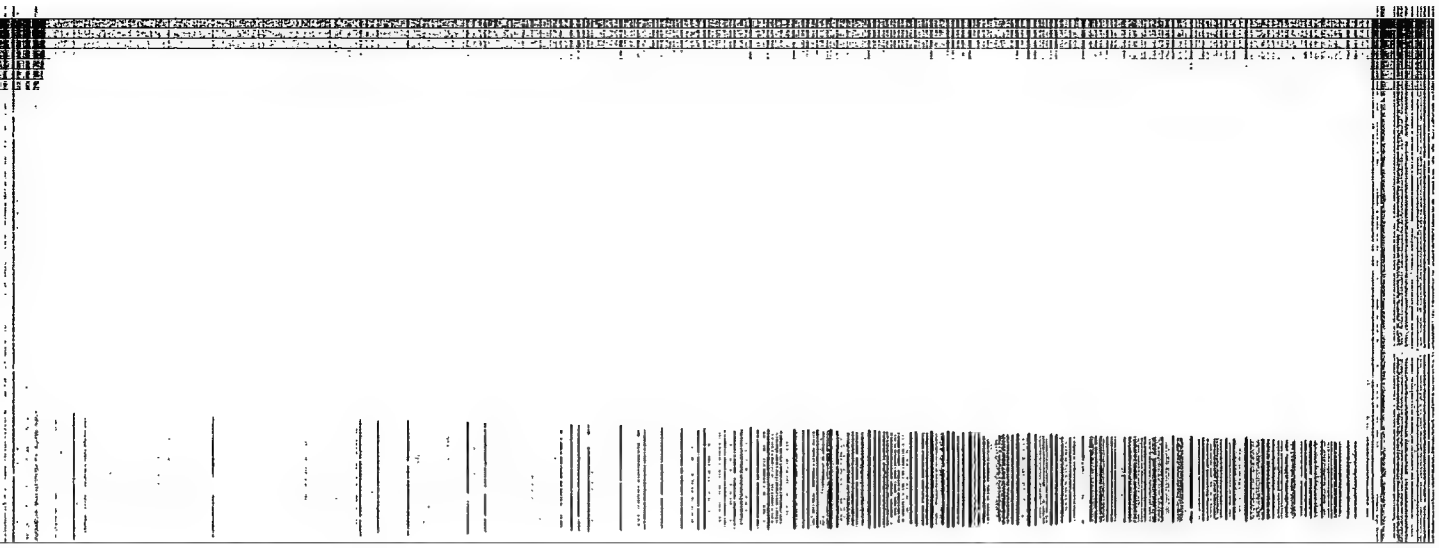

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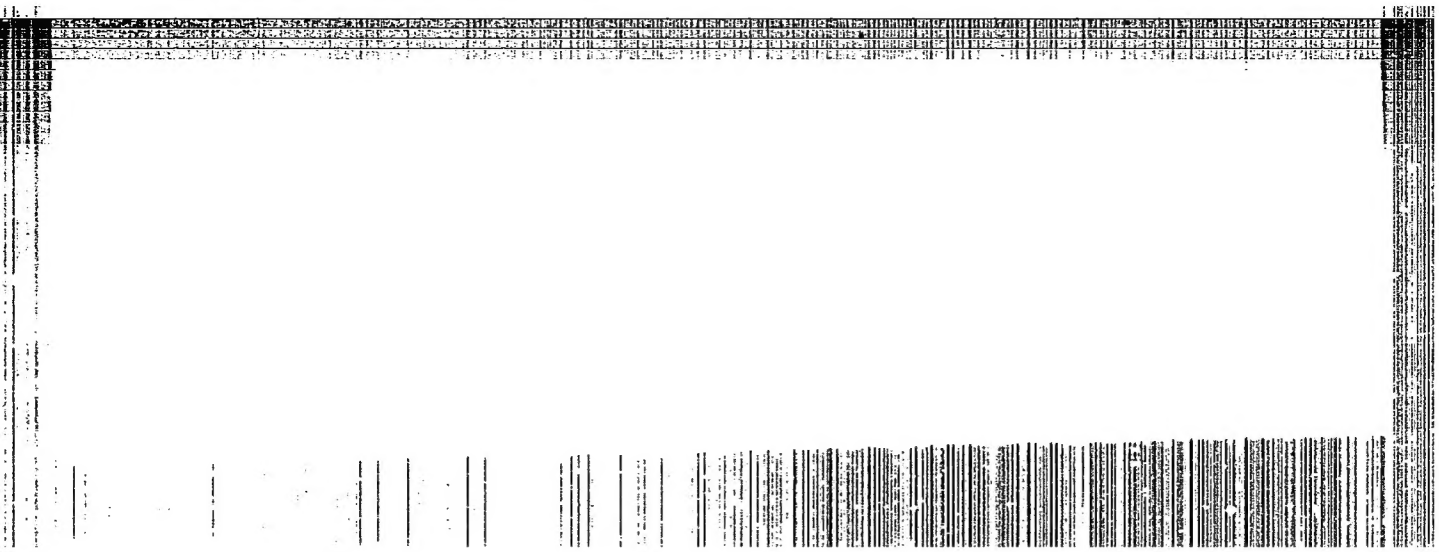

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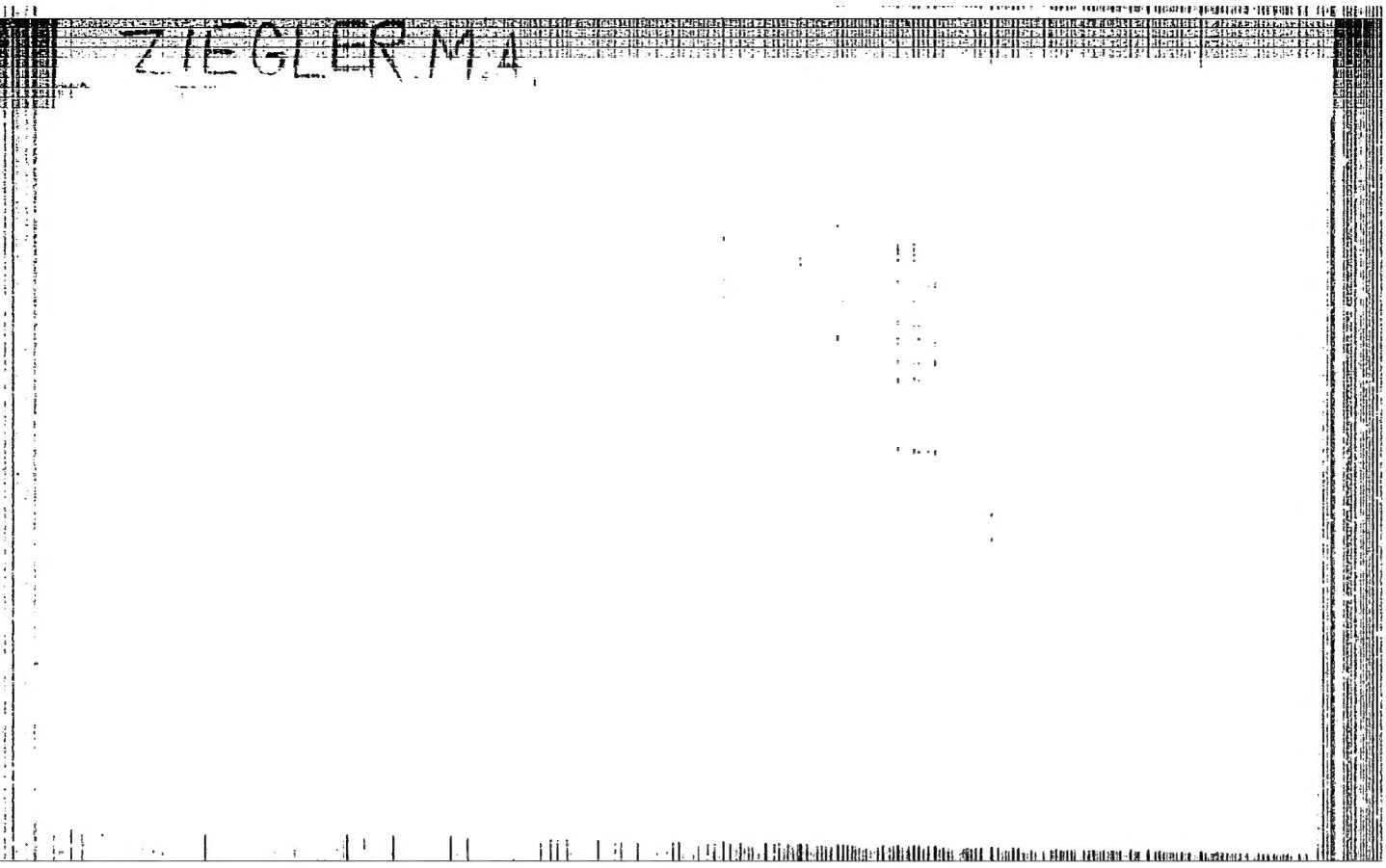

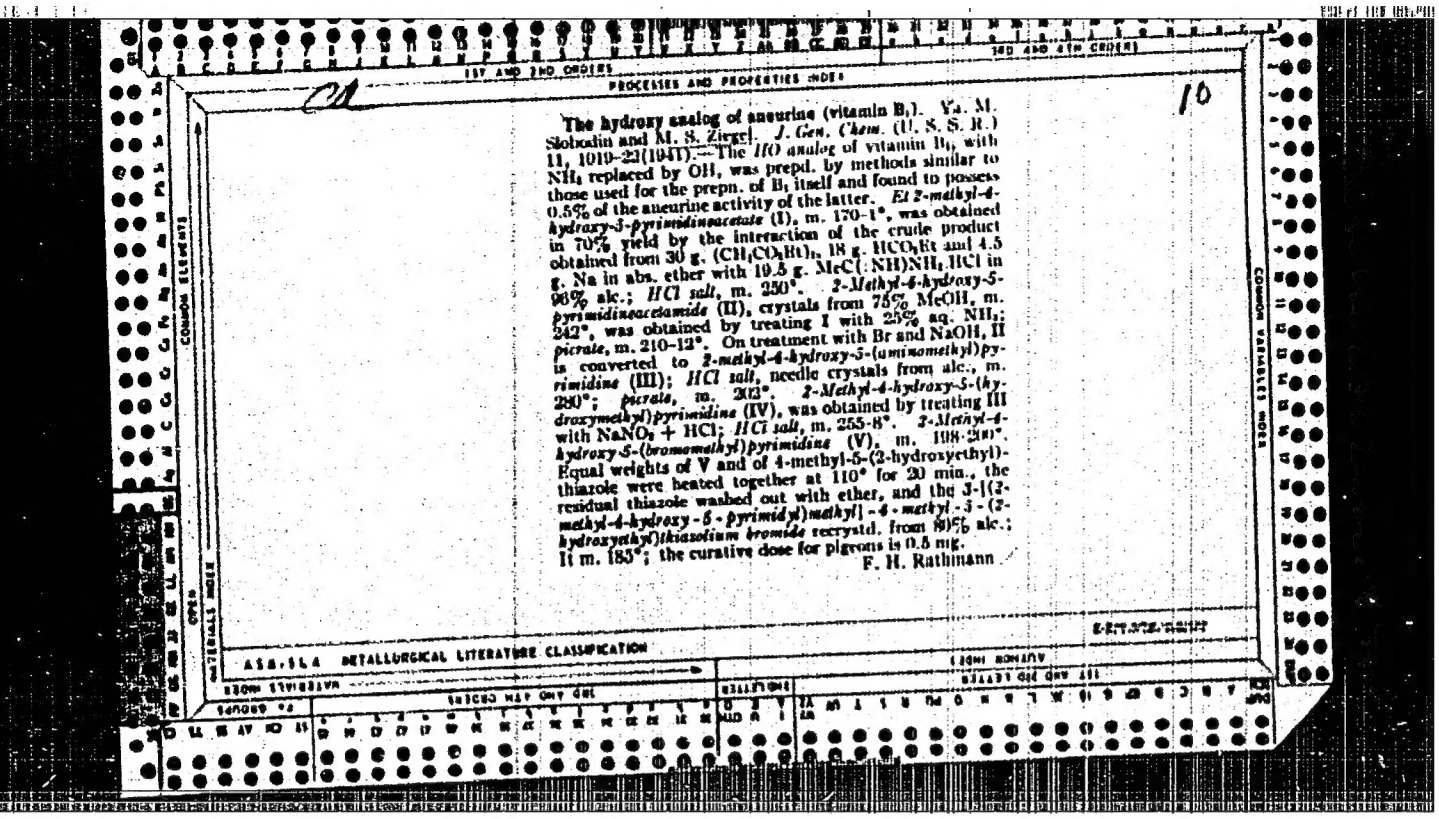

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

C1

10

The hydroxy analog of aneurine (vitamin B_1). Ya. M. Slobodin and M. S. Ziegel. *J. Gen. Chem.* (U. S. S. R.) 11, 1019–22(1941).—The *HO analog* of vitamin B_1, with NH_2 replaced by OH, was prepd. by methods similar to those used for the prepn. of B_1 itself and found to possess 0.5% of the aneurine activity of the latter. *Et 2-methyl-4-hydroxy-5-pyrimidineacetate* (I), m. 170–1°, was obtained in 70% yield by the interaction of the crude product obtained from 30 g. $(CH_3CO_2Et)_2$, 18 g. HCO_2Et and 4.5 g. Na in abs. ether with 19.5 g. $MeC(:NH)NH_2.HCl$ in 96% alc.; *HCl salt*, m. 250°. *2-Methyl-4-hydroxy-5-pyrimidineacetamide* (II), crystals from 75% MeOH, m. 242°, was obtained by treating I with 25% aq. NH_3; *picrate*, m. 210–12°. On treatment with Br and NaOH, II is converted to *2-methyl-4-hydroxy-5-(aminomethyl)pyrimidine* (III); *HCl salt*, needle crystals from alc., m. 280°; *picrate*, m. 203°. *2-Methyl-4-hydroxy-5-(hydroxymethyl)pyrimidine* (IV), was obtained by treating III with $NaNO_2$ + HCl; *HCl salt*, m. 255–8°. *2-Methyl-4-hydroxy-5-(bromomethyl)pyrimidine* (V), m. 198–200°. Equal weights of V and of 4-methyl-5-(2-hydroxyethyl)-thiazole were heated together at 110° for 20 min., the residual thiazole washed out with ether, and the *3-[(2-methyl-4-hydroxy-5-pyrimidyl)methyl]-4-methyl-5-(2-hydroxyethyl)thiazolium bromide* recrystd. from 80% alc.; it m. 183°; the curative dose for pigeons is 0.5 mg.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CZECHOSLOVAKIA

FEDELESOVA, M.; and ZIEGELHOEFFER: Department of Experimental Surgery of the Slovak Academy of Sciences (Ustav experimentalnej chirurgie SAV,) Bratislava.

"Tissue Removal for Determination of Macroergic Phosphates, Orthophsphates, Creatine Phosphate, Glycogen, Lactate and Pyruvate in the Tissue Specimens."

Prague, Ceskoslovenska Fysiologie, Vol 14, No 6, Nov 65; pp 499-503.

Abstract : Photograph and detailed description of special quick-freezing biopsy resection forceps for collection of specimens and immediate determination of evanescent biochemical compounds. Photograph, 3 tables, 2 Czech and 25 Western references; ms rec 20 Jan 65.

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